WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Wednesday, July 06, 2005

Hide?	Set Name	Query	Hit Count
		DB=PGPB; PLUR=YES; OP=AND	
☐	L1	(kwang or liu or low or loh).in. and salmonella	210
☐	L2	L1 and enteritidis	13
☐	L3	kwang.in. and enteritidis	0
		DB=USPT; PLUR=YES; OP=AND	
☐	L4	kwang.in. and enteritidis	4
		DB=PGPB,USPT; PLUR=YES; OP=AND	
☐	L5	(hweising or hwei-sing).in. and enteritidis	0
		DB=EPAB,JPAB,DWPI; PLUR=YES; OP=AND	
☐	L6	(kwang or liu or low or loh).in. and salmonella	19
☐	L7	L6 not l2	19
☐	L8	L6 not l2	19
☐	L9	(kwang).in. and salmonella	3

END OF SEARCH HISTORY

WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Wednesday, July 06, 2005

Hide?	Set Name	Query	Hit Count
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=AND	
☐	L1	flagell$ same enteritid$	29
		DB=EPAB,JPAB,DWPI; PLUR=YES; OP=AND	
☐	L2	9803656	9
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=AND	
☐	L3	epitop$ near10 flage$	117
☐	L4	L3 same salmonel$	60
		DB=USPT; PLUR=YES; OP=AND	
☐	L5	6211159.pn.	1
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=AND	
☐	L6	salmonel$.ti. and enteritid$.ti. and (fimbria$ or flagel$)	4

END OF SEARCH HISTORY

Terms	Documents
salmonel$.ti. and enteritid$.ti. and (fimbria$ or flagel$)	4

Display Format: - Change Format

Previous Page Next Page Go to Doc#

Generate Collection | Print

Search Results - Record(s) 1 through 29 of 29 returned.

1. 20050068040. 26 Sep 03. 31 Mar 05. High efficiency electrostatic air sampler. Mitchell, Bailey W., et al. 324/457; G01R029/12.

2. 20040120962. 15 Apr 03. 24 Jun 04. Modulation of immune responses to foreign antigens expressed by recombinant attenuated bacterial vectors. Curtiss, Roy III, et al. 424/184.1; A61K039/00 A61K039/38.

3. 20040052802. 16 May 03. 18 Mar 04. Salmonella vaccine. Nuijten, Petrus Johannes Maria, et al. 424/184.1; A61K039/00 A61K039/38.

4. 20040001849. 07 Mar 03. 01 Jan 04. Antigen library immunization. Punnonen, Juha, et al. 424/186.1; 424/188.1 424/189.1 424/190.1 530/350 A61K039/12 A61K039/21 A61K039/29 A61K039/02 C07K014/16 C07K014/02 C07K014/195.

5. 20030228623. 27 Sep 02. 11 Dec 03. Methods for generating, selecting, and identifying compounds which bind a target molecule. Cantor, Charles R., et al. 435/7.1; 435/235.1 435/252.33 435/7.2 G01N033/53 G01N033/567 C12N007/00 C12N001/21.

6. 20030219752. 17 May 02. 27 Nov 03. Novel antigen binding molecules for therapeutic, diagnostic, prophylactic, enzymatic, industrial, and agricultural applications, and methods for generating and screening thereof. Short, Jay M.. 435/6; 435/320.1 435/325 435/326 435/69.1 435/7.1 530/387.1 536/23.1 C12Q001/68 G01N033/53 C07H021/04 C12P021/02 C12N005/06 C07K016/00 C07H021/02 C12P021/06 C12N015/00 C12N015/09 C12N015/63 C12N015/70 C12N015/74 C12N005/00 C12N005/02 C12N005/06 C12N005/16.

7. 20030219722. 22 Apr 02. 27 Nov 03. Fusion proteins, modified filamentous bacteriophage, and populations or libraries of same. Ladner, Robert Charles, et al. 435/5; 435/252.3 435/320.1 435/69.7 530/350 536/23.72 C07K014/01 C12Q001/70 C07H021/04 C12P021/04 C12N001/21 C12N015/74.

8. 20030207287. 19 Aug 02. 06 Nov 03. Non-stochastic generation of genetic vaccines. Short, Jay M.. 435/6; 435/320.1 435/325 435/69.1 514/44 800/288 C12Q001/68 A61K048/00 A01H005/00 C12P021/02 C12N005/06 A61K031/70 A01N043/04 C12P021/06 A01H001/00 C12N015/82 C12N015/87 C12N015/00 C12N015/09 C12N015/63 C12N015/70 C12N015/74 C12N005/00 C12N005/02.

9. 20030036181. 29 Jun 01. 20 Feb 03. Peptide extended glycosylated polypeptides. Okkels, Jens Sigurd, et al. 435/184; 435/183 530/322 530/350 530/351 530/388.1 530/397 C12N009/99 C12N009/00 C07K009/00 C07K016/46 C07K014/705 C07K014/575 C07K014/52 C07K014/475.

10. 20020198162. 10 Feb 99. 26 Dec 02. ANTIGEN LIBRARY IMMUNIZATION. PUNNONEN, JUHA, et al. 514/44; A61K031/70 A01N043/04.

11. 20020150881. 14 Feb 01. 17 Oct 02. Directed evolution of novel binding proteins. Ladner, Robert Charles, et al. 435/5; 435/235.1 435/6 435/7.1 C12Q001/70 C12Q001/68 G01N033/53 C12N007/00.

☐ 12. 20020082206. 30 May 01. 27 Jun 02. Novel polynucleotides from atherogenic cells and polypeptides encoded thereby. Leach, Martin D., et al. 514/12; 435/183 435/320.1 435/325 435/69.1 530/350 536/23.1 A61K038/17 C07H021/04 C12N009/00 C12N005/06 C12P021/02 C07K014/435.

☐ 13. 20010021386. 27 Dec 00. 13 Sep 01. Salmonella vaccine. Nuijten, Petrus Johannes Maria, et al. 424/258.1; 435/252.8 A61K039/112 C12N001/20.

☐ 14. 6713279. 04 Feb 00; 30 Mar 04. Non-stochastic generation of genetic vaccines and enzymes. Short; Jay M.. 435/69.1; 435/320.1 435/334 435/6. C12P021/06 C12Q001/68 C12N005/06 C12N015/00.

☐ 15. 6576757. 28 Nov 00; 10 Jun 03. Polynucleotides encoding flavivirus and alphavirus multivalent antigenic polypeptides. Punnonen; Juha, et al. 536/23.72; 424/184.1 424/204.1 424/218.1 424/228.1 536/23.1. C07H021/04 A61K039/12 A01N043/04.

☐ 16. 6569435. 28 Nov 00; 27 May 03. Flavivirus and alphavirus recombinant antigen libraries. Punnonen; Juha, et al. 424/202.1; 424/204.1 424/234.1 424/236.1 424/274.1 435/320.1 435/6 514/44. A61K039/12 A61K039/295 A01N043/04.

☐ 17. 6541011. 10 Feb 99; 01 Apr 03. Antigen library immunization. Punnonen; Juha, et al. 424/204.1; 424/218.1 530/300 530/350. A61K039/12 C07K001/00.

☐ 18. 6479258. 31 Jan 00; 12 Nov 02. Non-stochastic generation of genetic vaccines. Short; Jay M.. 435/69.1; 530/350 536/23.2. C12P021/06 C07K001/00 C07H021/04.

☐ 19. 5902742. 17 May 96; 11 May 99. Complex growth supplement for maintenance of bacterial cell viability and induction of bacterial cell differentiation. Petter; Jean Guard, et al. 435/252.1; 435/243 435/252.8 435/253.6. C12N001/20 C12N001/00.

☐ 20. 5807694. 07 Sep 95; 15 Sep 98. Detection of salmonella enteritidis and other pathogenic microorganisms and monoclonal antibody useful therefor. Zawistowski; Jerzy. 435/7.35; 435/174 435/243 435/252.8 435/7.1 435/7.2 435/7.32. G01N033/569 G01N033/53 C12N001/20.

☐ 21. 5750115. 10 Apr 95; 12 May 98. Escherichia coli vaccine. Van Den Bosch; Johannes Franciscus. 424/241.1; 424/185.1 424/190.1 424/197.11 424/257.1 435/252.1 435/252.8. A61K039/108 C12N001/20.

☐ 22. 5674495. 27 Feb 95; 07 Oct 97. Alginate-based vaccine compositions. Bowersock; Terry L., et al. 424/184.1; 424/234.1 424/278.1 424/280.1 424/281.1 424/424 424/434 424/438 424/480 424/492. A61K039/00 A61K045/00 A61K039/02 A61F013/00.

☐ 23. 5510241. 25 May 95; 23 Apr 96. Method of testing for the presence of Salmonella serotypes expressing Salmonella enteritidis fimbrial antigen (SEFA) and reagents therefore. Thorns; Christopher J.. 435/7.3; 435/7.35 530/350 530/387.1 530/388.4 530/389.5 530/391.1 530/391.3. G01N033/53 C07K014/255 C07K016/00.

☐ 24. WO2004055045A. Salmonella antigen formulation useful for identifying SE-infected fowl and fowl inoculated with SE-attenuated vaccine, comprising Salmonella enteritidis flagellin 9 kDa polypeptide. EKAWA, T, et al. A61K039/00 A61K039/112 A61P031/04 C07K014/255 G01N033/53 G01N033/569.

☐ 25. KR2002056452A. Egg yolk antibody against salmonella. KIM, J U. C07K016/02.

☐ 26. KR2002032772A. Specific egg yolk antibody(igy) against salmonella. KIM, J U. C07K016/02.

☐ 27. EP 1112747A. Bacterium of genus Salmonella, that in it's wild type form carries flagella, which is not capable of inducing antibodies against antigenic determinants of flagellin or flagella, useful for treating Salmonellosis. NUIJTEN, P J M, et al. A61K039/106 A61K039/112 A61K039/39 A61P001/12 A61P031/04 A61P037/04 C12N001/20 C12N001/21 C12N001/20 C12R001:42 C12N001/20 C12R001:42 C12N001/20 C12R001:42 C12N001/20 C12R001:42.

☐ 28. WO 200078995A. New method for the specific detection of Salmonella enteritidis infections of poultry comprises contacting a biological sample with antigenic fragments of S. enteritidis fimbrial and/or flagellin proteins. KWANG, H, et al. C07K014/255 C12Q001/10.

☐ 29. WO 8604352A. Antisera prepn. capable of reacting with all salmonella - useful for analysis of food samples. FLEET, G H, et al. A61K039/40 C07K015/12 C12N011/14 G01N033/55.

Generate Collection Print

Terms	Documents
flagell$ same enteritid$	29

Prev Page Next Page Go to Doc#

```
ile 155:MEDLINE(R) 1951-2005/Jul W1
       (c) format only 2005 The Dialog Corp.

      Set  Items  Description
      ---  -----  -----------
Cost is in DialUnits
? ds
Terminal set to DLINK
? s (s1 or s2) and fusion? and flage? and (fimbr? or pili?)

Set     Items   Description
S1       4701   E3-E37
S2       4250   ENTERITIDIS?
S3       6815   'FIMBRIA' OR 'FIMBRIAE' OR E10-E12
S4       4964   R1:R7
S5       3890   R1-R2
S6       6624   E1-E23
S7       6622   R1-R2
S8        329   E3-E4
S9        325   'FLIC'
S10        26   (S1 OR S2) AND (S9 OR S3 OR S4 OR S5) AND (S6 OR S7 OR S8)
S11        13   S10/2000:2005
S12        13   S10 NOT S11
? s (s1 or s2) and fusion? and flage? and (fimbr? or pili?)
            4701  S1
            4250  S2
          126584  FUSION?
           11700  FLAGE?
            7919  FIMBR?
            3570  PILI?
    S13        0  (S1 OR S2) AND FUSION? AND FLAGE? AND (FIMBR? OR PILI?)
?
? add medicine
       06jul05 13:34:37 User228206 Session D2461.3
            $1.19    0.350 DialUnits File155
     $1.19  Estimated cost File155
     $0.26  TELNET
     $1.45  Estimated cost this search
     $1.45  Estimated total session cost   0.350 DialUnits


SYSTEM:OS  - DIALOG OneSearch
You have  26 files in your file list.
(To see file names, coverage dates, and copyright notices, enter SHOW FILES.)

      Set  Items  Description
      ---  -----  -----------

Added File(s): 5, 34, 35, 48, 65, 71, 73, 91, 94, 98, 135, 144,
               149, 156, 159, 162, 164, 172, 266, 369, 370, 399, 434, 444,
               467
Previous sets have been retained; enter DISPLAY SETS to view them.
? s enteritidis? (100n) fusion? (100n) flage? (100n) (fimbri? or pili?)
           26558  ENTERITIDIS?
          916273  FUSION?
          152912  FLAGE?
           41115  FIMBRI?
           34154  PILI?
     S14       1  ENTERITIDIS? (100N) FUSION? (100N) FLAGE? (100N) (FIMBRI?
                  OR PILI?)
```

? t s14/6/all

14/6/1 (Item 1 from file: 399)
DIALOG(R)File 399:(c) 2005 American Chemical Society. All rts. reserv.

Detection of Salmonella enteritidis by detecting antibodies to fimbrial or flagellin proteins
? t s14/3,kwic/all
>>>KWIC option is not available in file(s): 399

14/3,KWIC/1 (Item 1 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 2005 American Chemical Society. All rts. reserv.

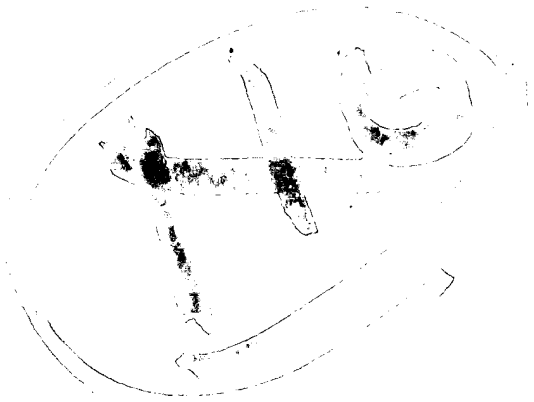
134070354 CA: 134(6)70354c PATENT
Detection of Salmonella enteritidis by detecting antibodies to fimbrial or flagellin proteins
INVENTOR(AUTHOR): Kwang, Hwei-Sing; Liu, Wei; Low, Su-Shing Sharon; Loh, Kwang Yeng Hilda
LOCATION: Singapore,
ASSIGNEE: Institute of Molecular Agrobiology
PATENT: PCT International ; WO 200078995 A1 DATE: 20001228
APPLICATION: WO 99SG61 (19990622)
PAGES: 48 pp. CODEN: PIXXD2 LANGUAGE: English CLASS: C12Q-001/10A; C07K-014/255B DESIGNATED COUNTRIES: AE; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY; CA; CH; CN; CU; CZ; DE; DK; EE; ES; FI; GB; GD; GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LV; MD; MG; MK; MN; MW; MX; NO; NZ; PL; PT; RO; RU; SD; SE; SG; SI; SK; SL; TJ; TM; TR; TT; UA; UG; US; UZ; VN; YU; ZA; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM
DESIGNATED REGIONAL: GH; GM; KE; LS; MW; SD; SL; SZ; UG; ZW; AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG
? logoff hold
06jul05 13:35:57 User228206 Session D2461.4
$0.15 0.043 DialUnits File155
$0.15 Estimated cost File155
$0.66 0.111 DialUnits File5
$0.66 Estimated cost File5
$1.57 0.071 DialUnits File34
$1.57 Estimated cost File34
$0.11 0.028 DialUnits File35
$0.11 Estimated cost File35
$0.08 0.015 DialUnits File48
$0.08 Estimated cost File48
$0.10 0.028 DialUnits File65
$0.10 Estimated cost File65
$0.38 0.043 DialUnits File71
$0.38 Estimated cost File71
$0.59 0.056 DialUnits File73
$0.59 Estimated cost File73
$0.09 0.022 DialUnits File91
$0.09 Estimated cost File91
$0.12 0.034 DialUnits File94
$0.12 Estimated cost File94
$0.13 0.031 DialUnits File98
$0.13 Estimated cost File98
$0.12 0.022 DialUnits File135
$0.12 Estimated cost File135
$0.32 0.071 DialUnits File144

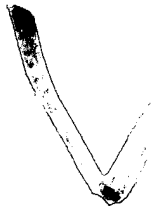
```
     $0.32  Estimated cost File144
            $0.11    0.025 DialUnits File149
     $0.11  Estimated cost File149
            $0.22    0.037 DialUnits File156
     $0.22  Estimated cost File156
            $0.12    0.037 DialUnits File159
     $0.12  Estimated cost File159
            $0.11    0.025 DialUnits File162
     $0.11  Estimated cost File162
            $0.05    0.015 DialUnits File164
     $0.05  Estimated cost File164
            $0.20    0.019 DialUnits File172
     $0.20  Estimated cost File172
            $0.08    0.022 DialUnits File266
     $0.08  Estimated cost File266
            $0.04    0.012 DialUnits File369
     $0.04  Estimated cost File369
            $0.08    0.022 DialUnits File370
     $0.08  Estimated cost File370
            $1.36    0.108 DialUnits File399
               $2.75  1 Type(s) in Format  3
               $0.55  1 Type(s) in Format  6
            $3.30  2 Types
     $4.66  Estimated cost File399
            $0.62    0.028 DialUnits File434
     $0.62  Estimated cost File434
            $0.12    0.025 DialUnits File444
     $0.12  Estimated cost File444
            $0.10    0.015 DialUnits File467
     $0.10  Estimated cost File467
            OneSearch, 26 files,  0.965 DialUnits FileOS
     $0.53  TELNET
    $11.46  Estimated cost this search
    $12.91  Estimated total session cost   1.315 DialUnits

Logoff: level 05.05.00 D  13:35:57

You are now logged off
```

flagellar (G) antigens observed on Salmonella enteritidis and S. pullorum (Holt and Chaubal (1997) J. Clin. Microbiol. 35: 1016-1020);





11968553 PMID: 9252570

SEF17 fimbriae **are essential for the convoluted colonial morphology of Salmonella** enteritidis .

Allen-Vercoe E; Dibb-Fuller M; Thorns C J; Woodward M J

Department of Bacteriology, Central Veterinary Laboratory, Addlestone, Surrey, UK.

FEMS microbiology letters (NETHERLANDS) Aug 1 1997, 153 (1) p33-42, ISSN 0378-1097 Journal Code: 7705721

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Salmonella **enteritidis** isolated from poultry infections generated a convoluted colonial morphology after 48 h growth on colonisation factor antigen (CFA) agar at 25 degrees C. A mutant S. **enteritidis** defective for the elaboration of the SEF17 fimbrial antigen, in which the agf gene cluster was inactivated by insertion of an ampicillin resistance gene cassette, and other wild-type S. **enteritidis** transduced to this genotype failed to produce convoluted colonies. However, growth of SEF17- mutants at 25 degrees C on CFA agar supplemented with 0.001% Congo red resulted in partial recovery of the phenotype. Immunoelectron microscopy demonstrated that copious amounts of the SEF17 fimbrial antigen were present in the extracellular matrix of convoluted colonies of wild-type virulent S. **enteritidis** isolates. Bacteria were often hyperflagellated also. Immunoelectron microscopy of SEF17- mutants grown on CFA agar+0.001% Congo red demonstrated the elaboration of an as yet undefined fimbrial structure. Isolates of S. **enteritidis** which were described previously as avirulent and sensitive to environmental stress failed to express SEF17 or produce convoluted colonies. These data indicate an essential role for SEF17, and possibly for another **fimbria** and **flagella** , in the generation of the convoluted colonial phenotype. The relationship between virulence and colonial phenotype is discussed.

Tags: Research Support, Non-U.S. Gov't

Descriptors: ***Fim**

6/9/32 (Item 32 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10138340 PMID: 8468257
Alternative antigens reduce cross-reactions in an ELISA for the detection of Salmonella enteritidis in poultry.
Baay M F; Huis in 't Veld J H
Department of the Science of Food of Animal Origin, Faculty of Veterinary Medicine, University of Utrecht, The Netherlands.
Journal of applied bacteriology (ENGLAND) Mar 1993, 74 (3) p243-7, ISSN 0021-8847 Journal Code: 7503050
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
Two alternative antigens for the use in detection of **antibodies** to salmonellas were investigated: firstly, lipopolysaccharide (LPS) from members of the D2 group, having antigens O: 9, 46, and **flagella** antigens. Whereas LPS from the D2 group did not discriminate sufficiently with control sera, **flagella** antigens reacted specifically with **antibodies** directed to serotype specific H antigens. When **flagella** antigens were used to screen sera from birds of commercial flocks, however, cross-reactivity between **flagella** antigens was observed. When both LPS and **flagella** antigens were used to screen sera from chickens infected with Salmonella **enteritidis** , the sera gave higher titres with **flagella** antigens during the early stages of infection, and titres with **flagella** antigens dropped earlier after infection had ended than titres with lipopolysaccharide.
Tags: Research Support, Non-U.S. Gov't
Descriptors: *Antigens, Bacterial--immunology--IM; *Enzyme-Linked Immunosorbent Assay--methods--MT; *Poultry Diseases--microbiology--MI; *Salmonella Infections, Animal--microbiology--MI; *Salmonella enteritidis --isolation and purification--IP; Animals; **Antibodies** , Bacterial--blood --BL; Chickens; Cross Reactions; Feces--microbiology--MI; **Flagella** --immunology--IM; **Immune** Sera--immunology--IM; Lipopolysaccharides --immunology--IM; Poultry Diseases--immunology--IM; Salmonella Infections, Animal--immunology--IM; Salmonella **enteritidis** --immunology--IM
CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Antigens, Bacterial); 0 (Immune Sera); 0 (Lipopolysaccharides)
Record Date Created: 19930507
Record Date Completed: 19930507

6/9/33 (Item 33 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10016532 PMID: 1361237
Characterisation of monoclonal antibodies **against a** fimbrial **structure of Salmonella** enteritidis **and certain other serogroup D salmonellae and their application as serotyping reagents.**
Thorns C J; Sojka M G; Mclaren I M; Dibb-Fuller M
Ministry of Agriculture, Fisheries and Food, Central Veterinary Laboratory, Weybridge, Surrey.
Research in veterinary science (ENGLAND) Nov 1992, 53 (3) p300-8,

ISSN 0034-5288 Journal Code: 0401300
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

A panel of 13 monoclonal **antibodies** from different hybridomas was produced against a novel salmonella **fimbrial** antigen expressed predominantly by Salmonella **enteritidis** strains. The specificity of the monoclonal **antibodies** to this antigen (SEF14) was confirmed by enzyme-linked immunosorbent assay (ELISA) using purified SEF14, **immune** electron microscopy and, with 11 monoclonal **antibodies**, the identification of a repeating protein subunit (14,300kDa) on the antigen. Blocking-ELISA with the monoclonal **antibodies** identified epitopes in at least three, non-overlapping clusters which appeared evenly distributed on SEF14 in **immune** electron microscopy. The use of the monoclonal **antibodies** in direct-binding ELISA on a range of salmonella serotypes suggested that the epitopes on SEF14 are highly conserved and were expressed by all the S **enteritidis** strains examined; some strains of S dublin and the only strain of S moscow available were the only other serotypes that expressed SEF14. A latex agglutination reagent based on a monoclonal **antibody** was developed and used to test for SEF14 on 280 strains (representing 120 serotypes in 24 serogroups of salmonellae) that had been grown on Sensitest agar for 18 hours at 37 degrees C. All S **enteritidis** strains (64) and most S dublin strains (28 of 33) produced SEF14 as did the two strains representing S blegdam and S moscow. SEF14 was not detected in any other strains of serotypes from serogroup D or from any other serogroup examined.

Descriptors: *Antigens, Bacterial--immunology--IM; *Fimbriae, Bacterial --immunology--IM; *Salmonella--immunology--IM; *Salmonella enteritidis --immunology--IM; *Serotyping--methods--MT; Antibodies, Bacterial; Antibodies, Monoclonal; Enzyme-Linked Immunosorbent Assay; Indicators and Reagents; Latex Fixation Tests; Microscopy, Immunoelectron; Salmonella --classification--CL; Sensitivity and Specificity

CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Antibodies, Monoclonal); 0 (Antigens, Bacterial); 0 (Indicators and Reagents)

Record Date Created: 19930121
Record Date Completed: 19930121

6/9/34 (Item 34 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

09932065 PMID: 1400954

Comparison of four different enzyme-linked immunosorbent assays for serological diagnosis of Salmonella enteritidis infections in experimentally infected chickens.

van Zijderveld F G; van Zijderveld-van Bemmel A M; Anakotta J
Department of Bacteriology, DLO-Central Veterinary Institute, Lelystad, The Netherlands.

Journal of clinical microbiology (UNITED STATES) Oct 1992, 30 (10) p2560-6, ISSN 0095-1137 Journal Code: 7505564
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM

Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

The program for the eradication of Salmonella **enteritidis** from chickens in The Netherlands is based on bacteriological examination of breeding flocks. There is a great need for a specific and sensitive serological screening test. For that purpose, we developed four different enzyme-linked immunosorbent assays (ELISAs), i.e., an indirect ELISA with S. **enteritidis** **flagellin** , an indirect ELISA with S. **enteritidis** lipopolysaccharide, a double- **antibody** sandwich blocking ELISA that uses monoclonal **antibodies** against S. **enteritidis** **flagellin** (GM-DAS blocking ELISA), and a double- **antibody** sandwich ELISA that uses monoclonal **antibodies** against S. **enteritidis** lipopolysaccharide. In the present study, we compare the results of those ELISAs with sera from experimentally infected 1-day-old chickens and with sera and eggs from experimentally infected laying hens. Experimental infections were induced with strains of S. **enteritidis** phage types 1 and 2, S. typhimurium, and S. panama. Sera were collected up to days 44 and 39 after infection from 1-day-old chickens and laying hens, respectively. Only the GM-DAS blocking ELISA was able to discriminate between S. **enteritidis** infections and infections with the other serotypes. This ELISA had both a sensitivity and a specificity of 100% for all serum samples from experimentally infected chickens. A field study is in progress to evaluate whether this test can be implemented in the Dutch S. **enteritidis** eradication program.

Tags: Comparative Study

Descriptors: *Antibodies, Bacterial--blood--BL; *Chickens--microbiology --MI; *Enzyme-Linked Immunosorbent Assay--veterinary--VE; *Poultry Diseases --diagnosis--DI; *Salmonella Infections, Animal--diagnosis--DI; *Salmonella enteritidis--isolation and purification--IP; Animals; **Antibodies** , Monoclonal; Egg Yolk--immunology--IM; Enzyme-Linked Immunosorbent Assay --methods--MT; **Flagellin** --immunology--IM; Lipopolysaccharides--immunology --IM; Salmonella **enteritidis** --immunology--IM; Sensitivity and Specificity ; Serologic Tests--methods--MT

CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Antibodies, Monoclonal); 0 (Lipopolysaccharides); 12777-81-0 (Flagellin)

Record Date Created: 19921110
Record Date Completed: 19921110

6/9/37 (Item 37 from file: 155)

09461322 PMID: 1677357

Purification and characterization of thin, aggregative fimbriae from Salmonella enteritidis.

Collinson S K; Emody L; Muller K H; Trust T J; Kay W W

Department of Biochemistry and Microbiology, University of Victoria, British Columbia, Canada.

Journal of bacteriology (UNITED STATES) Aug 1991, 173 (15) p4773-81, ISSN 0021-9193 Journal Code: 2985120R

Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

Novel **fimbriae** were isolated and purified from the human enteropathogen Salmonella **enteritidis** 27655. These **fimbriae** were thin (measuring 3 to

4 nm in diameter), were extremely aggregative, and remained cell associated despite attempts to separate them from blended cells by centrifugation. The thin **fimbriae** were not solubilized in 5 M NaOH or in boiling 0.5% deoxycholate, 8 M urea, or 1 to 2% sodium dodecyl sulfate (SDS) with or without 5% beta-mercaptoethanol. Therefore, an unconventional purification procedure based on the removal of contaminating cell macromolecules in sonicated cell extracts by enzymatic digestion and preparative SDS-polyacrylamide gel electrophoresis (PAGE) was used. The insoluble **fimbriae** recovered from the well of the gel required depolymerization in formic acid prior to analysis by SDS-PAGE. Acid depolymerization revealed that the **fimbriae** were composed of fimbrin subunits, each with an apparent molecular mass of 17 kDa. Although their biochemical characteristics and amino acid composition were typical of **fimbriae** in general, these thin **fimbriae** were clearly distinct from other previously characterized **fimbriae** . Moreover, their fimbrin subunits had a unique N-terminal amino acid sequence. Native **fimbriae** on whole cells were specifically labeled with immune serum raised to the purified **fimbriae** . This **immune** serum also reacted with the denatured 17-kDa fimbrin protein in Western blots. The polyclonal **immune** serum did not cross-react with the other two native **fimbrial** types produced by this strain or with their respective fimbrins on Western blots (immunoblots). Therefore, these **fimbriae** represent the third **fimbrial** type produced by the enteropathogen S. **enteritidis** .

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Bacterial Adhesion; *Fimbriae, Bacterial--ultrastructure --UL; *Salmonella enteritidis--ultrastructure--UL; Amino Acid Sequence; Electrophoresis, Polyacrylamide Gel; Fimbriae, Bacterial--physiology--PH; Humans; Immunohistochemistry; Isoelectric Focusing; Molecular Sequence Data ; Molecular Weight; Salmonella enteritidis--pathogenicity--PY

Record Date Created: 19910829

Record Date Completed: 19910829

6/9/38 (Item 38 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

09461321 PMID: 1677356

Type 1 fimbriae of Salmonella enteritidis.

Muller K H; Collinson S K; Trust T J; Kay W W

Department of Biochemistry and Microbiology, University of Victoria, British Columbia, Canada.

Journal of bacteriology (UNITED STATES) Aug 1991, 173 (15) p4765-72, ISSN 0021-9193 Journal Code: 2985120R

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Salmonella **enteritidis** was previously shown to produce **fimbriae** composed of 14,000-molecular-weight (Mr) fimbrin monomers (J. Feutrier, W. W. Kay, and T. J. Trust, J. Bacteriol. 168:221-227, 1986). Another distinct **fimbrial** structure, comprising 21,000-Mr fimbrin monomers, has now been identified. These **fimbriae** are simply designated as SEF 14 and SEF 21, respectively (for S. **enteritidis** **fimbriae** and the Mr [in thousands] of the fimbrin monomer). A simple method for the purification of both structures was developed by using the different biochemical properties of

these **fimbriae** . SEF 21 remained intact after being boiled in sodium dodecyl sulfate but readily dissociated into subunits of 21,000 Mr at pH 2.2. The overall amino acid composition and the N-terminal amino acid sequence of the SEF 21 fimbrin were distinct from those of SEF 14 but were virtually identical to the predicted sequence for type 1 fimbrin of Salmonella typhimurium. Immunoelectron microscopy of S. **enteritidis** clearly revealed **fimbrial** structures that reacted with **immune** serum specific to the 21,000-Mr fimbrin. **Immune** sera raised against this subunit were cross-reactive with type 1 fimbrins found in whole-cell lysates of S. typhimurium, Salmonella illinois, and Salmonella cubana. However, there was no cross-reaction with Escherichia coli type 1 **fimbriae** or with other fimbrins produced by S. **enteritidis** . Under certain growth conditions, S. **enteritidis** produced both SEF 14 and SEF 21. However, when S. **enteritidis** was grown at 30 degrees C or lower, only the 21,000-Mr SEF 21 fimbrin could be detected. There was a direct correlation between mannose-sensitive hemagglutination and the presence of SEF 21.

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Fimbriae, Bacterial--ultrastructure--UL; *Microfilament Proteins; *Salmonella enteritidis--ultrastructure--UL; Amino Acid Sequence; Cross Reactions; **Fimbriae** , Bacterial--chemistry--CH; **Fimbriae** , Bacterial--immunology--IM; Hemagglutination Tests; **Immune** Sera; Membrane Glycoproteins--chemistry--CH; Molecular Sequence Data; Molecular Weight; Salmonella **enteritidis** --classification--CL; Salmonella **enteritidis** --immunology--IM

CAS Registry No.: 0 (Immune Sera); 0 (Membrane Glycoproteins); 0 (Microfilament Proteins); 0 (fimbrin)

Record Date Created: 19910829

Record Date Completed: 19910829

6/9/41 (Item 41 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

09137583 PMID: 2219649

Detection of antibody **to Salmonella** enteritidis **by a gm** flagellin **-based ELISA.**

Timoney J F; Sikora N; Shivaprasad H L; Opitz M

Department of Veterinary Microbiology, Immunology and Parasitology, New York State College of Veterinary Medicine, Cornell University, Ithaca 14853.

Veterinary record (ENGLAND) Aug 18 1990, 127 (7) p168-9, ISSN 0042-4900 Journal Code: 0031164

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Descriptors: ***Antibodie** s, Bacterial--blood--BL; *Enzyme-Linked Immunosorbent Assay--veterinary--VE; * **Flagellin** --immunology--IM; *Salmonella **enteritidis** --immunology--IM; Animals; Chickens; Enzyme-Linked Immunosorbent Assay--methods--MT; Immunoblotting--veterinary--VE; Immunoenz yme Techniques--veterinary--VE; Poultry Diseases--diagnosis--DI; Salmonella Infections, Animal--diagnosis--DI

CAS Registry No.: 0 (Antibodies, Bacterial); 12777-81-0 (Flagellin)

Record Date Created: 19901121

Record Date Completed: 19901121

6/9/45 (Item 45 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

08342418 PMID: 2900832

Cloning and expression of a Salmonella enteritidis fimbrin gene in Escherichia coli.

Feutrier J; Kay W W; Trust T J
Department of Biochemistry and Microbiology, University of Victoria, British Columbia, Canada.

Journal of bacteriology (UNITED STATES) Sep 1988, 170 (9) p4216-22, ISSN 0021-9193 Journal Code: 2985120R
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

A gene bank of DNA from a human isolate of Salmonella **enteritidis** was constructed in the cosmid pHC79 in Escherichia coli HB101. Five clones containing 35- to 45-kilobase inserts of S. **enteritidis** DNA reacted in colony immunoblot assays with a polyclonal **antiserum** prepared against purified S. **enteritidis fimbriae** . Electron microscopy showed that none of the five fimbrin-producing clones produced **fimbriae** , yet radioimmunoprecipitation and sodium dodecyl sulfate-polyacrylamide gel electrophoresis located the 14,400-molecular-weight S. **enteritidis** in the outer membrane fraction of three of the clones and in the periplasmic fraction of all five clones. By using an oligonucleotide probe homologous to the 5' region of the fimbrin structural gene, the fimbrin gene was located on a 5.3-kilobase HindIII fragment. In vitro transcription-translation analysis verified that this HindIII fragment subcloned into plasmid pTZ18R produced unprocessed S. **enteritidis** fimbrin of molecular weight 16,400. Dot blot hybridization against a selection of strains of the family Enterobacteriaceae indicated a limited distribution of the S. **enteritidis** fimbrin gene.

Tags: Research Support, Non-U.S. Gov't
Descriptors: *Escherichia coli--genetics--GE; *Fimbriae, Bacterial --physiology--PH; *Membrane Glycoproteins--genetics--GE; *Microfilament Proteins; *Salmonella enteritidis--genetics--GE; Autoradiography; Cloning, Molecular; Cosmids; DNA Restriction Enzymes; DNA, Bacterial--genetics--GE; Electrophoresis, Polyacrylamide Gel; Gene Expression Regulation; Genes, Bacterial; Genes, Structural; Humans; Immunoassay; Membrane Glycoproteins --analysis--AN; Nucleic Acid Hybridization; Salmonella enteritidis --analysis--AN; Salmonella enteritidis--ultrastructure--UL
CAS Registry No.: 0 (Cosmids); 0 (DNA, Bacterial); 0 (Membrane Glycoproteins); 0 (Microfilament Proteins); 0 (fimbrin)
Enzyme No.: EC 3.1.21 (DNA Restriction Enzymes)
Record Date Created: 19881006
Record Date Completed: 19881006

6/9/46 (Item 46 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

07677458 PMID: 2875990

Purification and characterization of fimbriae from Salmonella enteritidis.

Feutrier J; Kay W W; Trust T J

Journal of bacteriology (UNITED STATES) Oct 1986, 168 (1) p221-7, ISSN 0021-9193 Journal Code: 2985120R

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

A human isolate of Salmonella **enteritidis** which displayed strong pellicle formation during static broth culture and mannose-sensitive hemagglutination produced **fimbriae** which were morphologically indistinguishable from type 1 **fimbriae** of members of the family Enterobacteriaceae. Fimbrin was purified to homogeneity, and the apparent molecular weight (Mr, 14,400) was markedly lower than that reported for the type 1 fimbrin of Salmonella typhimurium (Mr, 22,100). This fimbrin contained 40% hydrophobic amino acids and lacked cysteine. The sequence of the N-terminal 64 amino acids was determined, and sequence alignment revealed that although the 18 N-terminal residues of the S. **enteritidis** molecule shared considerable homology with Escherichia coli and S. typhimurium type 1 fimbrins, the S. **enteritidis** fimbrin lacked a 6- to 9-residue terminal sequence present in the other type 1 fimbrins and, after residue 18, shared little homology with the E. coli sequence. **Antibodies** raised to the purified S. **enteritidis** fimbrin bound to surface-exposed conformational epitopes on the native **fimbriae** and displayed pronounced serospecificity. These **antibodies** were used in the isolation of a nonfimbriated Tn10 insertion mutant which was unable to hemagglutinate.

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Bacterial Proteins--analysis--AN; *Fimbriae, Bacterial --analysis--AN; *Membrane Glycoproteins; *Membrane Proteins--analysis--AN; *Microfilament Proteins; *Salmonella enteritidis--ultrastructure--UL; Amino Acid Sequence; Antigens, Bacterial--immunology--IM; Bacterial Proteins --genetics--GE; Bacterial Proteins--immunology--IM; Bacterial Proteins --isolation and purification--IP; Cell Fractionation; DNA Transposable Elements; Hemagglutination; Membrane Proteins--genetics--GE; Membrane Proteins--immunology--IM; Membrane Proteins--isolation and purification --IP; Molecular Weight; Mutation; Salmonella enteritidis--analysis--AN; Salmonella enteritidis--genetics--GE

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0 (DNA Transposable Elements); 0 (Membrane Glycoproteins); 0 (Membrane Proteins); 0 (Microfilament Proteins); 0 (fimbrin)

Record Date Created: 19861110

Record Date Completed: 19861110

6/9/2 (Item 2 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

12438093 PMID: 9748652

Periplasmic and fimbrial SefA from Salmonella enteritidis.

Clouthier S C; Collinson S K; Lippert D; Ausio J; White A P; Kay W W

Department of Biochemistry and Microbiology, Petch Building, University of Victoria, P.O. Box 3055, Victoria, B.C. V8W 3P6, Canada.

Biochimica et biophysica acta (NETHERLANDS) Sep 8 1998, 1387 (1-2) p355-68, ISSN 0006-3002 Journal Code: 0217513

Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

Salmonella **enteritidis** produces thin, filamentous **fimbriae** composed of the fimbrin subunit SefA. Although insoluble in most detergents and chaotropic agents, these **fimbriae** were soluble at pH 10.5. Furthermore, in sodium dodecyl sulfate, these fibers depolymerized into monomers, dimers and other multimers of SefA, which precipitated on removal of the detergent. In contrast, unassembled periplasmic SefA fimbrins purified from Escherichia coli expressing cloned sefA and sefB were readily soluble in aqueous solution. **Fimbrial** and periplasmic SefA also differed in their reaction with an anti-SEF14 monoclonal **antibody** and in their surface hydrophobicity, indicating that the two forms had different properties. Precise mass measurements of periplasmic and **fimbrial** SefA by mass spectroscopy showed that these variations were not due to post-translational modifications. Periplasmic SefA consisted primarily of intact as well as some N-terminally truncated forms. The main 24 amino acid, N-terminally truncated form of periplasmic SefA was present as a 12.2 kDa monomer which had a low tendency to dimerize whereas intact periplasmic SefA was present as a 34.1 kDa homodimer. Intact periplasmic SefA also formed stable multimers at low concentrations of chemical cross-linker but multimerization of the truncated form required high concentrations of protein or cross-linker. Thus, SefA fimbrins appear to multimerize through their N-termini and undergo a conformational change prior to assembly into fibers. Within these fibers, subunit-subunit contact is maintained through strong hydrophobic interactions.

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Bacterial Proteins--chemistry--CH; *Fimbriae Proteins; *Salmonella enteritidis--chemistry--CH; Cloning, Molecular; Cross-Linking Reagents--metabolism--ME; Periplasm--chemistry--CH; Pili, Sex--chemistry --CH; Protein Conformation; Recombinant Proteins--chemistry--CH; Succinimides--metabolism--ME; Ultracentrifugation

CAS Registry No.: 0 (Bacterial Proteins); 0 (Cross-Linking Reagents); 0 (Recombinant Proteins); 0 (Succinimides); 0 (sefA protein, Salmonella enteritidis); 147680-16-8 (Fimbriae Proteins); 82436-77-9 (bis(sulfosuccinimidyl)suberate)

Record Date Created: 19981113
Record Date Completed: 19981113

6/9/3 (Item 3 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

12432596 PMID: 9744035

[Agglutination of hen egg-yolk immunoglobulins (IgY) against Salmonella enterica, serovar enteritidis]

Aglutinacion de inmunoglobulinas de yema de huevo de gallina (IgY) contra Salmonella enterica serovariedad enteritidis.

Terzolo H R; Sandoval V E; Caffer M I; Terragno R; Alcain A
INTA EEA Balcarce, Departamento de Produccion Animal, Argentina.

Revista Argentina de microbiologia (ARGENTINA) Apr-Jun 1998, 30 (2) p84-92, ISSN 0325-7541 Journal Code: 8002834
Publishing Model Print
Document type: Journal Article ; English Abstract
Languages: SPANISH

Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

Two groups of 6 laying hens were used to produce IgY. In the vaccinated group (V), hens were injected by intramuscular route with two doses of a Salmonella enterica serovar **Enteritidis** bacterin at 20-day interval. In the control group (T) hens remained unvaccinated. Four IgY extractions were performed on the egg production of both groups. The first two extractions were carried out using the yolks obtained from the eggs produced during the 4th and 5th post-vaccination week (extracts 1V and 1T) and the other two using the ones from the 6th, 7th and 8th week (2V and 2T). Starting from the extracts 1V and 1T other products were obtained by freezing-thawing (1V-A and 1T-A) and simple (1V-B and 1T-B) or double (1V-C and 1T-C) flow capillary dialysis concentration. All these products were compared using an ELISA test specific for the detection of chicken **antibodies** against **flagellar** antigens of S. **Enteritidis** . In this test, V extracts were positive whereas T extracts were negative. The extract 1V was more positive than the extract 2V. The extract 1V-C was the most positive and was therefore selected to be used as an **antiserum** in the agglutination tests. This extract contained 1.9 g/dl of total proteins, 0.028 g/dl of triglycerides and 0.012 g/dl of cholesterol and showed an electrophoretic pattern characteristic of IgY. The 1T-C extract was used as a negative control in the agglutination tests. Slide somatic and tube **flagellar** agglutination tests were simultaneously carried out using both IgY extracts and a standard rabbit anti-Salmonella (IgG) sera. Overall 367 strains from the Enterobacteriaceae family were tested together with two other strains belonging to the Vibrionaceae family. The 1V-C extract specifically agglutinated S. **Enteritidis** strains in the same way as the rabbit sera. This extract also agglutinated other Salmonella strains antigenically related to S. **Enteritidis** . Salmonella which did not share somatic or **flagellar** antigens with S. **Enteritidis** , other different species of the Enterobacteriaceae family and the two strains of the Vibrionaceae family were all negative. None of the strains tested was agglutinated by the 1T-C extract. This paper show that it is possible to use specific IgY to identify S. enterica serovars. The more extended use of IgY for diagnostic purposes may be a convenient way to complement the current use of mammal polyclonal **antibodies** .

Tags: Comparative Study; Female

Descriptors: *Agglutination Tests; *Antibodies, Bacterial--immunology--IM; *Bacterial Vaccines--immunology--IM; *Chickens--immunology--IM; *Egg Proteins--immunology--IM; *Immunoglobulins--immunology--IM; *Poultry Diseases--diagnosis--DI; *Salmonella Infections, Animal--diagnosis--DI; *Salmonella enterica--immunology--IM; Animals; Enterobacteriaceae --immunology--IM; Injections, Intramuscular; Poultry Diseases--immunology --IM; Poultry Diseases--prevention and control--PC; Rabbits; Salmonella Infections, Animal--immunology--IM; Salmonella Infections, Animal --prevention and control--PC; Salmonella enterica--classification--CL; Serotyping; Species Specificity; Vaccination--veterinary--VE; Vibrionaceae --immunology--IM

CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Bacterial Vaccines); 0 (Egg Proteins); 0 (IgY); 0 (Immunoglobulins)

Record Date Created: 19981119
Record Date Completed: 19981119

6/9/6 (Item 6 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

12241422 PMID: 9549856

Characterisation of epitopes of type 1 fimbriae **of Salmonella using monoclonal** antibodies **specific for SEF21** fimbriae **of Salmonella** enteritidis .

Sojka M G; Carter M A; Thorns C J

Department of Bacteriology, Central Veterinary Laboratory, Surrey, UK.

Veterinary microbiology (NETHERLANDS) Jan 16 1998, 59 (2-3) p157-74, ISSN 0378-1135 Journal Code: 7705469

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Monoclonal **antibodies** (mAbs) were used to identify and characterise epitopes of type 1 (SEF21) **fimbriae** of Salmonella **enteritidis** . The distribution of the epitopes among salmonellas and other enterobacteria was investigated, as well as the influence of growth media and temperatures on their expression. At least four different epitope clusters were identified on SEF21 **fimbriae** of S. **enteritidis** . Two of these clusters were associated with **fimbrial** haemagglutinins that were either common to all salmonellae tested, or restricted only to S. **enteritidis** and S. dublin. The four epitope clusters were identified on type 1 **fimbriae** of most Salmonella serotypes, as well as non-haemagglutinating type 2 **fimbriae** of S. pullorum and S. gallinarum, and on many other enterobacterial species. The expression of the epitopes was affected by growth conditions.

Tags: Research Support, Non-U.S. Gov't

Descriptors: ***Antibodie** s, Monoclonal--immunology--IM; *Antigens, Bacterial--chemistry--CH; *Epitopes--analysis--AN; * **Fimbriae** , Bacterial --immunology--IM; *Salmonella **enteritidis** --immunology--IM; Animals; **Antibodies** , Bacterial--immunology--IM; Antigens, Bacterial--immunology --IM; Binding, Competitive; Enzyme-Linked Immunosorbent Assay; Epitopes --immunology--IM; **Fimbriae** , Bacterial--chemistry--CH; Gene Expression Regulation, Bacterial; Glycerol--metabolism--ME; Guanidine--metabolism--ME; Hemagglutination Inhibition Tests; Hemagglutination Tests; Latex Fixation Tests; Mice; Salmonella **enteritidis** --chemistry--CH

CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Antibodies, Monoclonal); 0 (Antigens, Bacterial); 0 (Epitopes); 113-00-8 (Guanidine); 56-81-5 (Glycerol)

Record Date Created: 19980520

Record Date Completed: 19980520

6/9/7 (Item 7 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

12147843 PMID: 9449861

Expression of SEF17 fimbriae by Salmonella enteritidis.

Dibb-Fuller M; Allen-Vercoe E; Woodward M J; Thorns C J

Bacteriology Department, Central Veterinary Laboratory, Addlestone, Surrey, UK.

Letters in applied microbiology (ENGLAND) Dec 1997, 25 (6) p447-52, ISSN 0266-8254 Journal Code: 8510094

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed
Subfile: BIOTECHNOLOGY

Specific immunological reagents were used to investigate the expression of SEF17 **fimbriae** by cultured strains of Salmonella **enteritidis** . Most strains of Salm. **enteritidis** tested expressed SEF17 when cultured at temperatures of 18-30 degrees C. However, two wild-type strains produced SEF17 when also grown at 37 degrees C and 42 degrees C. Colonization factor antigen agar was the optimum medium for SEF17 expression, whereas Drigalski and Sensitest agars poorly supported SEF17 production. Very fine **fimbriae** produced by a strain of Salm. typhimurium were specifically and strongly labelled by SEF17 monoclonal and polyclonal **antibodies** , indicating considerable antigenic conservation between the two. Curli **fimbriae** from Escherichia coli were similarly labelled. The production of these **fimbriae** correlated with the binding of fibronectin by the organism. Congo red binding by cultured bacteria was not a reliable criterion for the expression of SEF17 **fimbriae** .

Tags: Female; Research Support, Non-U.S. Gov't

Descriptors: *Fimbriae, Bacterial--ultrastructure--UL; *Salmonella enteritidis--ultrastructure--UL; Animals; Antibodies, Monoclonal --immunology--IM; Chickens; Culture Media; Fibronectins--metabolism--ME; Mice; Mice, Inbred BALB C; Microscopy, Immunoelectron; Temperature

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Culture Media); 0 (Fibronectins)

Record Date Created: 19980212
Record Date Completed: 19980212

6/9/8 (Item 8 from file: 155)

11903920 PMID: 9181610

Assessing the sensitivity of egg yolk antibody testing for detecting Salmonella enteritidis infections in laying hens.

Gast R K; Porter R E; Holt P S
USDA-Agricultural Research Service, Athens, Georgia 30605, USA.

Poultry science (UNITED STATES) Jun 1997, 76 (6) p798-801, ISSN 0032-5791 Journal Code: 0401150
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

The identification of infected commercial poultry flocks has become a pivotal component of efforts to reduce the incidence of egg-associated transmission of Salmonella **enteritidis** to humans. To assess the sensitivity with which testing for specific **antibodies** in egg yolks can be applied to detect S. **enteritidis** infection in laying chickens, groups of hens were orally inoculated with either 10(3), 10(5), or 10(7) cfu of a phage type 13a strain of S. **enteritidis** . Eggs from these hens were collected for 4 wk after inoculation and yolk samples were tested for **antibodies** to S. **enteritidis** **flagella** by ELISA. All hens that were inoculated with 10(7) cfu of S. **enteritidis** were detected as infected by the egg yolk ELISA when eggs were tested individually, as were up to 66 and 35% of hens inoculated with 10(5) or 10(3) cfu, respectively. Even when yolks from infected hens were diluted 1:10 in yolk from uninfected hens, specific **antibodies** could still be found in eggs from 31% of hens given

10(7) cfu of S. **enteritidis** and 13% of hens given 10(3) cfu. These results demonstrate that egg yolk **antibody** testing can provide a highly sensitive indication of prior exposure to S. **enteritidis** , and should accordingly be useful for verifying the effectiveness of programs designed to reduce the incidence of S. **enteritidis** infection in poultry.

Tags: Female

Descriptors: *Antibodies, Bacterial--analysis--AN; *Chickens --microbiology--MI; *Egg Yolk--immunology--IM; *Poultry Diseases--diagnosis --DI; *Salmonella Infections, Animal--diagnosis--DI; *Salmonella enteritidis--immunology--IM; Animals; Egg Yolk--microbiology--MI; Enzyme-Linked Immunosorbent Assay--methods--MT; Enzyme-Linked Immunosorbent Assay--veterinary--VE; Incidence; Poultry Diseases --epidemiology--EP; Poultry Diseases--immunology--IM; Salmonella Infections, Animal--epidemiology--EP; Salmonella Infections, Animal --immunology--IM; Salmonella enteritidis--isolation and purification--IP; Salmonella enteritidis--physiology--PH; Sensitivity and Specificity; Specific Pathogen-Free Organisms

CAS Registry No.: 0 (Antibodies, Bacterial)

Record Date Created: 19970827

Record Date Completed: 19970827

6/9/9 (Item 9 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

11830151 PMID: 9087337

Applying tests for specific yolk antibodies to predict contamination by Salmonella enteritidis in eggs from experimentally infected laying hens.

Gast R K; Porter R E; Hold P S

USDA-ARS, Southeast Poultry Research Laboratory, Athens, Georgia 30605, USA.

Avian diseases (UNITED STATES) Jan-Mar 1997, 41 (1) p195-202, ISSN 0005-2086 Journal Code: 0370617

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Detecting Salmonella **enteritidis** contamination in eggs has become the cornerstone of many programs for reducing egg-borne disease transmission, but egg culturing is time consuming and laborious. Preliminary screening tests are thus generally applied to minimize the number of flocks from which eggs must be cultured. The usefulness of such tests is directly proportional to both their detection sensitivity and their ability to predict the likelihood of egg contamination. In the present study, samples were collected for 24 days after groups of laying hens were orally inoculated with S. **enteritidis** . Eggs from each hen were cultured for S. **enteritidis** in the contents and samples of egg yolk were diluted and tested for specific **antibodies** to S. **enteritidis** **flagella** using both experimental and commercially available enzyme-linked immunosorbent assay (ELISA) methods. Samples of voided feces were also collected regularly from each bird and cultured for S. **enteritidis** . Although fecal shedding and egg yolk **antibody** production followed opposite patterns over time (fecal shedding was decreasing as egg yolk **antibody** titers were increasing), tests for both parameters were effective in predicting whether particular hens would lay contaminated eggs. Among hens that laid at least one egg

contaminated by S. **enteritidis** , 82% were detected as infected by fecal culturing and 96% by the experimental egg yolk ELISA test. Using easily collected samples, egg yolk **antibody** testing offers a rapid and effective screening method for identifying S. **enteritidis** -infected laying flocks that might lay contaminated eggs.

Tags: Female

Descriptors: *Antibodies, Bacterial--analysis--AN; *Egg Yolk--immunology --IM; *Eggs--microbiology--MI; *Food Microbiology; *Salmonella Infections, Animal--immunology--IM; *Salmonella enteritidis--immunology--IM; Animals; Chickens; Egg Yolk--microbiology--MI; Enzyme-Linked Immunosorbent Assay --methods--MT; Feces--microbiology--MI; Flagella--immunology--IM; Oviposition; Predictive Value of Tests; Probability; Salmonella Infections, Animal --diagnosis--DI; Salmonella Infections, Animal--transmission--TM; Time Factors

CAS Registry No.: 0 (Antibodies, Bacterial)

Record Date Created: 19970609

Record Date Completed: 19970609

6/9/11 (Item 11 from file: 155)

11634056 PMID: 8945540

In vitro attachment and invasion of chicken ovarian granulosa cells by Salmonella enteritidis phage type 8.

Thiagarajan D; Saeed M; Turek J; Asem E

Department of Veterinary Pathobiology, School of Veterinary Medicine, Purdue University, West Lafayette, Indiana 47907, USA.

Infection and immunity (UNITED STATES) Dec 1996, 64 (12) p5015-21, ISSN 0019-9567 Journal Code: 0246127

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

The attachment and invasion of chicken ovarian granulosa cells by Salmonella enteritidis was examined in vitro. The attachment was inhibited by preincubation of granulosa cells with anti-chicken fibronectin antibody (approximately 70% reduction in attachment) or preincubation with a 14-kDa fimbrial protein isolated from S. enteritidis (68% reduction in attachment). Treatment of bacterial cells with the tetrapeptide RGDS before addition to granulosa cells resulted in inhibition of attachment (60% inhibition when 2 x 10(7) CFU of bacteria was treated with 500 microg of peptide). Treatment with the peptide GRGD resulted in similar magnitude of inhibition, indicating that extracellular matrix proteins play significant roles in the interaction of S. enteritidis with granulosa cells. In contrast, treatment of the bacterial cells with the peptide GRAD did not result in significant inhibition of attachment to the granulosa cells. S. enteritidis was found to attach specifically to fibronectin, collagen IV, and laminin-coated microtiter plate wells, with the rank order of attachment as follows: fibronectin > laminin > collagen IV. Light and transmission electron micrographs of S. enteritidis invasion of granulosa cells showed organisms with or without a surrounding membrane in the cytoplasm of granulosa cells. In some instances, dividing bacterial cells were observed in the cytoplasm. Results of this study demonstrated that S. **enteritidis** interacts with granulosa cells in a specific manner and can invade and multiply in these cells. The granulosa cell layer of the

preovulatory follicles may be a preferred site for the colonization of the chicken ovaries by invasive strains of S. enteritidis.
Tags: Female; Research Support, Non-U.S. Gov't
Descriptors: *Adhesins, Bacterial--physiology--PH; *Bacterial Adhesion; *Bacteriophages--physiology--PH; *Granulosa Cells--microbiology--MI; *Salmonella Infections, Animal--microbiology--MI; *Salmonella enteritidis --physiology--PH; Animals; Chickens; Extracellular Matrix Proteins --physiology--PH; Granulosa Cells--virology--VI; Salmonella Infections, Animal--virology--VI; Salmonella enteritidis--virology--VI
CAS Registry No.: 0 (Adhesins, Bacterial); 0 (Extracellular Matrix Proteins)
Record Date Created: 19970108
Record Date Completed: 19970108

6/9/12 (Item 12 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

11620907 PMID: 8933590
Experimental infection of laying hens with Salmonella enteritidis strains that express different types of fimbriae.
Thiagarajan D; Thacker H L; Saeed A M
Department of Veterinary Pathobiology, School of Veterinary Medicine, Purdue University, West Lafayette, Indiana 47907, USA.
Poultry science (UNITED STATES) Nov 1996, 75 (11) p1365-72, ISSN 0032-5791 Journal Code: 0401150
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
A study was conducted to compare the pathogenicity of three Salmonella **enteritidis** phage type 8 strains (9, 21, and 30) in 30-wk-old laying hens. Strain 9 expressed two types of **fimbriae** of 14 and 21 kDa. Strain 30 expressed a single **fimbrial** type (21 kDa). Strain 21 did not express any **fimbrial** protein. Laying hens were divided into three groups of 35 each and each group was orally inoculated with a single S. **enteritidis** strain (1 x 10(8) cfu per bird). Significantly less intensive cecal colonization and fecal shedding of the organism were observed in hens that were inoculated with the strain that did not express **fimbriae** than in birds inoculated with other two strains ($P < 0.05$). Isolation of S. **enteritidis** from liver, spleen, reproductive organs, and egg contents did not differ between groups. Mean serum S. **enteritidis** lipopolysaccharide-specific **antibody** titers of birds inoculated with strain 21 were lower than titers of hens that were inoculated with the other two strains from the 5th wk through the end of the trial. Immunoblot of the bacterial outer membrane structures revealed the presence of serum **antibodies** against lipopolysaccharide, membrane-associated proteins, and purified 14 kDa **fimbrial** protein in birds inoculated with strain 9 as late as 9 wk postinoculation. Results of this study are consistent with a role for **fimbrial** proteins in the cecal colonization by S. **enteritidis** . In addition, cecal colonization mediated by **fimbrial** proteins may enhance the elicitation of humoral **immune** response against S. **enteritidis** .
Tags: Female; Research Support, Non-U.S. Gov't
Descriptors: *Chickens--microbiology--MI; *Fimbriae, Bacterial --ultrastructure--UL; *Poultry Diseases--classification--CL; *Salmonella

Infections, Animal--classification--CL; *Salmonella enteritidis --classification--CL; *Salmonella enteritidis--ultrastructure--UL; Animals ; Antibodies, Bacterial--blood--BL; Antibodies, Bacterial--metabolism--ME; Bacterial Proteins--physiology--PH; Cecum--microbiology--MI; Chickens --immunology--IM; Eggs--microbiology--MI; Electrophoresis, Polyacrylamide Gel--veterinary--VE; Feces--microbiology--MI; Immunoblotting--veterinary --VE; Liver--microbiology--MI; Ovary--microbiology--MI; Poultry Diseases --immunology--IM; Poultry Diseases--physiopathology--PP; Salmonella Infections, Animal--immunology--IM; Salmonella Infections, Animal --physiopathology--PP; Salmonella enteritidis--isolation and purification --IP; Spleen--microbiology--MI

CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Bacterial Proteins)

Record Date Created: 19970227

Record Date Completed: 19970227

6/9/13 (Item 13 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

11558280 PMID: 8870619

A novel relationship between O-antigen variation, matrix formation, and invasiveness of Salmonella enteritidis.

Guard-Petter J; Keller L H; Rahman M M; Carlson R W; Silvers S

USDA/ARS, Southeast Poultry Research Laboratory, Athens, GA 30605, USA.

Epidemiology and infection (ENGLAND) Oct 1996, 117 (2) p219-31, ISSN 0950-2688 Journal Code: 8703737

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Salmonella enterica **Enteritidis** in chickens serves as a reservoir for salmonellosis in humans and the structure of its lipopolysaccharide (LPS) has been used to assess invasiveness. Culture from chick spleens generated colonies with an unusual wrinkled morphology, and it is designated the lacy phenotype. The characterize the nature of the morphological change, three isogenic variants were compared. Only the lacy phenotype produced a temperature-dependent cell surface matrix composed of several proteins in association with LPS high molecular weight O-antigen. **Flagellin** and a 35 kDa protein were identified as specific proteinaceous components of matrix. Both proteins cross-reacted with a monoclonal **antibody** previously determined to specifically detect the g-epitope of the **Enteritidis** monophasic **flagella** (H-antigen). These results suggest that O-antigen in association with protein contributes to cross-reactivity between molecules. The lacy phenotype was more organ invasive in 5-day-old chicks than isogenic variants producing low molecular weight O-antigen. However, it was no more efficient at contaminating eggs after oral inoculation of hens than a variant that completely lacked O-antigen, thus the lacy phenotype is classified as an intermediately invasive organism. The distinctive colonial phenotype of SE6-E21lacy was used to investigate environmental factors that decreased O/C ratios and contributed to attenuation. In so doing, it was found that growth in complement at 46 degrees C caused matrix producing cells to hyperflagellate and migrate across agar surfaces. These results suggest that the structure of O-antigen might influence the secretion and/or the function of **Enteritidis** cell-surface proteins. The data also reveal a greater heterogeneity than has been assumed in the phenotype, and possibly the infectious behaviour, of **Enteritidis** .

Tags: Research Support, U.S. Gov't, Non-P.H.S.
Descriptors: *Antigenic Variation--immunology--IM; *Extracellular Matrix Proteins--physiology--PH; *O Antigens--immunology--IM; *Salmonella enteritidis--genetics--GE; *Salmonella enteritidis--immunology--IM; Animals; Chickens; Immunoblotting; Molecular Weight; Phenotype; Poultry Diseases--microbiology--MI; Salmonella Infections, Animal--microbiology--MI ; Salmonella enteritidis--pathogenicity--PY; Serotyping; Spleen --microbiology--MI
CAS Registry No.: 0 (Extracellular Matrix Proteins); 0 (O Antigens)
Record Date Created: 19961120
Record Date Completed: 19961120

6/9/16 (Item 16 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

11333201 PMID: 8677603
Evaluation of SEF14 fimbrial dot blot and flagellar western blot tests as indicators of Salmonella enteritidis infection in chickens.
Cooper G L; Thorns C J
Veterinary Laboratories Agency, New Haw, Addlestone, Surrey.
Veterinary record (ENGLAND) Feb 17 1996, 138 (7) p149-53, ISSN 0042-4900 Journal Code: 0031164
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
The serological responses to Salmonella **enteritidis flagella** (H: g,m) and its **fimbrial** antigen SEF14 were evaluated as indicators of infection in chickens and to confirm serological results obtained by an ELISA using S **enteritidis** lipopolysaccharide (LPS) (O: 9,12) as the detecting antigen. The SEF14 antigen and **flagella** were extracted from S **enteritidis** and transferred to nitrocellulose paper for use in Western and dot blot tests. Antisera to 19 salmonella serotypes including S **enteritidis** were raised in rabbits and their cross reactivity to the **flagellar** and SEF14 antigens was evaluated. Cross reactivity with the SEF14 antigen was found in one antiserum, raised against S blegdam, and to **flagella** in eight of 19 antisera raised against various salmonella serotypes, most of which shared the **flagellar** factors g or m with S **enteritidis** . The intensity of cross reaction to **flagella** was strongest in S derby and S blegdam antisera. **Antisera** raised in chickens against S typhimurium and S panama did not cross react in either test, and neither did pooled sera from eight-week-old salmonella-free, broiler breeder parent chickens. Field sera from two commercial flocks with no history of salmonella infection were negative when tested by the LPS ELISA. These sera were also negative when tested by the **flagellar** and SEF14 blots. S **enteritidis** infection in a commercial laying flock was detected initially when the sera were tested by the LPS ELISA and confirmed in individual and pooled sera by the SEF14 and **flagellar** tests. S **enteritidis** PT4 was isolated from this flock post mortem.
Descriptors: *Antibodies, Bacterial--analysis--AN; *Antigens, Bacterial --immunology--IM; *Chickens; *Poultry Diseases--diagnosis--DI; *Salmonella Infections, Animal--diagnosis--DI; *Salmonella enteritidis--immunology--IM ; Animals; Antibodies, Bacterial--immunology--IM; Antigens, Bacterial --diagnostic use--DU; Blotting, Western--methods--MT; Blotting, Western

--standards--ST; Blotting, Western--veterinary--VE; Cross Reactions; Enzyme-Linked Immunosorbent Assay--veterinary--VE; Evaluation Studies; Fimbriae, Bacterial--immunology--IM; Flagella--immunology--IM; Immune Sera --immunology--IM; Immunoblotting--methods--MT; Immunoblotting--standards --ST; Immunoblotting--veterinary--VE; Poultry Diseases--immunology--IM; Rabbits; Salmonella Infections, Animal--immunology--IM
CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Antigens, Bacterial); 0 (Immune Sera)
Record Date Created: 19960815
Record Date Completed: 19960815

6/9/17 (Item 17 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

11292606 PMID: 8605578
Salmonella fimbriae: novel antigens in the detection and control of salmonella infections.
Thorns C J
Bacteriology Department, Central Veterinary Laboratory, New Haw, Addlestone, UK.
British veterinary journal (ENGLAND) Nov-Dec 1995, 151 (6) p643-58, ISSN 0007-1935 Journal Code: 0372554
Publishing Model Print
Document type: Journal Article; Review; Review, Tutorial
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
Fimbriae are thin, proteinaceous surface organelles produced by members of the Enterobacteriaceae, including most salmonellas. A number of **fimbrial** antigens expressed by strains of Salmonella **enteritidis** and S. typhimurium have now been described and characterized. However, their functions are still poorly understood, although some evidence indicates they have a role in bacterial survival in the host or external environment. Diagnostic tests based on the detection of **fimbriae** or specific **antibodies** against them have recently been developed and applied successfully to the rapid and specific identification of S. **enteritidis** infections. The role of salmonella **fimbriae** in future generations of live vaccines either as protective antigens or as the carriers of heterologous antigens is also discussed. (82 Refs.)
Descriptors: *Fimbriae, Bacterial--physiology--PH; *Salmonella --ultrastructure--UL; Bacterial Vaccines; Fimbriae, Bacterial --classification--CL; Fimbriae, Bacterial--genetics--GE; Fimbriae, Bacterial--ultrastructure--UL; Salmonella--isolation and purification--IP; Salmonella--pathogenicity--PY; Virulence
CAS Registry No.: 0 (Bacterial Vaccines)
Record Date Created: 19960520
Record Date Completed: 19960520

6/9/18 (Item 18 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10892656 PMID: 7533759
Identification of the domain which determines the g,m serotype of the

flagellin of Salmonella enteritidis.

van Asten A J; Zwaagstra K A; Baay M F; Kusters J G; Huis in't Veld J H; van der Zeijst B A

Department of Bacteriology, University of Utrecht, The Netherlands.

Journal of bacteriology (UNITED STATES) Mar 1995, 177 (6) p1610-3, ISSN 0021-9193 Journal Code: 2985120R

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Clones expressing fragments of the **flagellin** protein of Salmonella **enteritidis** were constructed and screened with a g,m-specific monoclonal **antibody** . Results showed that the g,m epitope is localized between amino acids 258 and 348 of the **flagellin** . The fliC gene, encoding the **flagellin** of S. **enteritidis** , was proven to be the only **flagellin** gene present in S. **enteritidis** .

Tags: Comparative Study

Descriptors: *Antigens, Bacterial--immunology--IM; *Epitopes--immunology --IM; *Flagellin--immunology--IM; *Salmonella enteritidis--immunology--IM; Amino Acid Sequence; Antigens, Bacterial--genetics--GE; Base Sequence; Cloning, Molecular; Epitope Mapping; Epitopes--genetics--GE; Flagellin --genetics--GE; Molecular Sequence Data; Peptide Fragments--genetics--GE; Peptide Fragments--immunology--IM; Salmonella enteritidis--genetics--GE; Sequence Homology, Amino Acid; Serotyping

Molecular Sequence Databank No.: GENBANK/U12963

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Epitopes); 0 (Peptide Fragments); 12777-81-0 (Flagellin); 156066-56-7 (FlaC protein)

Record Date Created: 19950413

Record Date Completed: 19950413

6/9/19 (Item 19 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10878145 PMID: 7870071

fimA and tctC based DNA diagnostics for Salmonella.

Doran J L; Collinson S K; Kay C M; Banser P A; Burian J; Munro C K; Lee S H; Somers J M; Todd E C; Kay W W

Department of Microbiology and Biochemistry, University of Victora, British Columbia, Canada.

Molecular and cellular probes (ENGLAND) Aug 1994, 8 (4) p291-310, ISSN 0890-8508 Journal Code: 8709751

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Immunochemical analyses of 85 isolates of 17 Salmonella serovars using polyclonal **antiserum** to SEF21, the type 1 **fimbriae** of Salmonella **enteritidis** , demonstrated antigenic relatedness among both type 1 and type 2 **fimbriae** of Salmonella. However, anti-SEF21 **antiserum** was not entirely suitable as a Salmonella diagnostic probe due either to a variability of, or a rare deficiency of, detectable **fimbriae** . Partial amino acid sequence analyses of the SEF21 structural fimbrin protein

revealed 99% homology to Salmonella typhimurium FimA. Therefore, oligonucleotide probes for Salmonella detection were designed following sequencing of S. **enteritidis** fimA and comparison to the corresponding genes of S. typhimurium, Escherichia coli, Klebsiella pneumoniae and Serratia marcescens. One oligonucleotide probe hybridized to all 612 Salmonella isolates of 89 serovars tested while two other probes detected 97.5% and 99.7% of the isolates. Three consistently weak positive reactions were obtained, therefore, inclusivity was optimized by identification of a Salmonella-specific tctC DNA probe that detected 609 of 612 Salmonella isolates. No hybridization of these Salmonella probes was detected to 250 other Enterobacteriaceae isolates or to 14 other eubacterial species. Therefore, in combination, DNA probes to fimA and tctC proved to be highly reliable diagnostics for Salmonella bacteria. Accordingly, PCR assays targeting fimA and tctC were developed.

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Bacterial Proteins--genetics--GE; *Carrier Proteins --genetics--GE; *DNA, Bacterial--genetics--GE; *Fimbriae Proteins; *Polymerase Chain Reaction; *Salmonella--genetics--GE; *Salmonella Infections--diagnosis--DI; Amino Acid Sequence; Base Sequence; Fimbriae, Bacterial--chemistry--CH; Humans; Molecular Sequence Data; Oligonucleotide Probes; Salmonella--classification--CL; Sequence Alignment; Sequence Homology; Serotyping; Species Specificity

Molecular Sequence Databank No.: GENBANK/S76043

CAS Registry No.: 0 (Bacterial Proteins); 0 (Carrier Proteins); 0 (DNA, Bacterial); 0 (Oligonucleotide Probes); 0 (citrate-binding transport protein); 0 (fimbrillin); 147680-16-8 (Fimbriae Proteins)

Gene Symbol: fimA; tctB; tctC

Record Date Created: 19950330

Record Date Completed: 19950330

6/9/21 (Item 21 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10755935 PMID: 7960117

A Salmonella enteritidis 11RX pilin induces strong T-lymphocyte responses.

Ogunniyi A D; Manning P A; Kotlarski I

Department of Microbiology and Immunology, University of Adelaide, Australia.

Infection and immunity (UNITED STATES) Dec 1994, 62 (12) p5376-83, ISSN 0019-9567 Journal Code: 0246127

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Our previous work, using proteins fractionated by sodium dodecyl sulfate-polyacrylamide gel electrophoresis to define antigens of Salmonella **enteritidis** 11RX able to stimulate T cells from S. **enteritidis** 11RX-primed (BALB/c x C57BL/6)F1 mice, had indicated the presence of a major antigenic determinant of 14 to 18 kDa (H.-M. Vordermeier and I. Kotlarski, Immunol. Cell. Biol. 68:299-305, 1990). The 14-kDa size is similar to that of the monomeric units of one of the **fimbrial** structures, SEF14, produced by a human enteropathogen, S. **enteritidis** 27655 (J. Feutrier, W. W. Kay, and T. J. Trust, J. Bacteriol. 168:221-227, 1986). Here we present data which indicate that S. **enteritidis** 11RX also

produces this protein and that it is able to elicit delayed-type hypersensitivity reactions in S. **enteritidis** 11RX-primed animals and to stimulate in vitro proliferation of, and cytokine release from, T cells obtained from these animals, implying that this **fimbrial** protein is likely to be an important immunogen of S. **enteritidis** . The protein was purified to homogeneity and is free from contamination with lipopolysaccharide. Standard immunoblot analysis with unabsorbed S. **enteritidis** 11RX **antiserum** and **antiserum** absorbed with Salmonella typhimurium C5 and various strains of Escherichia coli, as well as a panel of anti-14-kDa-protein monoclonal **antibodies** , suggests that this **fimbrial** protein is not the common antigen expressed by a number of organisms belonging to the family Enterobacteriaceae. Immunogold electron microscopy with one of these monoclonal **antibodies** confirms that the 14-kDa protein and SEF14 are identical.

Tags: Female; Male; Research Support, Non-U.S. Gov't

Descriptors: *Antigens, Bacterial--immunology--IM; *Bacterial Proteins --immunology--IM; *Fimbriae Proteins; *Fimbriae, Bacterial--immunology--IM; *Lymphocyte Activation; *Salmonella enteritidis--immunology--IM; Amino Acid Sequence; Animals; Bacterial Proteins--isolation and purification--IP; Cross Reactions; Cytokines--secretion--SE; Fimbriae, Bacterial --ultrastructure--UL; Hypersensitivity, Delayed--immunology--IM; Mice; Mice, Inbred BALB C; Mice, Inbred C57BL; Microscopy, Immunoelectron; Molecular Sequence Data; Salmonella enteritidis--classification--CL; Salmonella enteritidis--ultrastructure--UL; Salmonella typhimurium --immunology--IM; T-Lymphocytes--immunology--IM

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0 (Cytokines); 0 (sefA protein, Salmonella enteritidis); 147680-16-8 (Fimbriae Proteins)

Record Date Created: 19941229

Record Date Completed: 19941229

6/9/22 (Item 22 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10734883 PMID: 7940513

[Evaluation of three commercial ELISA test kits for the detection of antibodies against Salmonella enteritidis]

Beurteilung von drei kommerziellen ELISA-Teskits zum Nachweis von Antikorpern gegen Salmonella enteritidis.

Sachsenweger O; Lohr J E; Kosters J

Staatlichen Tierarztlichen Untersuchungsamt, Aulendorf.

Tierarztliche Praxis (GERMANY) Aug 1994, 22 (4) p350-7, ISSN 0303-6286 Journal Code: 7501042

Publishing Model Print

Document type: Journal Article ; English Abstract

Languages: GERMAN

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

We evaluated three commercial enzyme-linked immunoassay (ELISA) test-kits, using either lipopolysaccharide (LPS) or **flagellar** extracts as antigens, for the demonstration of Salmonella **enteritidis** (S. e.) **antibodies** in serum and egg yolk. They were also compared with conventional serological tests, such as the pullorum rapid slide agglutination test (RST), the pullorum slow agglutination tube test and a rapid slide agglutination test, using gm **flagellar** extracts as antigen.

We tested sera and eggs from six different layer flocks. In 84.1 to 90% of the sera and egg yolks tested the three commercial ELISA test kits gave comparable results. There were a number of serological cross-reaction with other serovars, particularly S. typhimurium. However, the possibility of infections with more than one salmonella serovar, other than S. e., cannot be excluded. The ELISA- **antibody** levels in serum and egg yolk ran parallel and were still high after one year. However, the level of egg yolk **antibodies** was on an average 33.9% lower than in serum. The S. e.-ELISA seems to be well suited for epidemiological investigations and for preventive and control measures.

Tags: Comparative Study; Female

Descriptors: *Antibodies, Bacterial--analysis--AN; *Chickens; *Poultry Diseases--diagnosis--DI; *Salmonella Infections, Animal--diagnosis--DI; *Salmonella enteritidis--immunology--IM; Agglutination Tests--veterinary --VE; Animals; Antibodies, Bacterial--blood--BL; Cross Reactions; Egg Yolk --immunology--IM; Enzyme-Linked Immunosorbent Assay--veterinary--VE; Evaluation Studies; Flagella--immunology--IM; Lipopolysaccharides --immunology--IM; Reagent Kits, Diagnostic--veterinary--VE; Reproducibility of Results

CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Lipopolysaccharides); 0 (Reagent Kits, Diagnostic)

Record Date Created: 19941122

Record Date Completed: 19941122

6/9/23 (Item 23 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10728954 PMID: 7934897

Unique fimbriae-like structures encoded by sefD of the SEF14 fimbrial gene cluster of Salmonella enteritidis.

Clouthier S C; Collinson S K; Kay W W

Department of Biochemistry and Microbiology, University of Victoria, British Columbia, Canada.

Molecular microbiology (ENGLAND) Jun 1994, 12 (6) p893-901, ISSN 0950-382X Journal Code: 8712028

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

The SEF14 gene cluster of Salmonella **enteritidis** was recently shown to contain three genes, sefABC, encoding a unique fimbrin, and proteins homologous to **fimbrial** chaperones and outer membrane proteins (ushers), respectively. A fourth open reading frame, designated sefD, was found immediately downstream of sefABC and overlapping sefC. The translated protein sequence of sefD was unique, but the composition was similar to that of other bacterial **fimbriae** . SefD was produced in abundance by wild-type S. **enteritidis** as shown by Western blot analysis using **antibodies** raised to affinity-purified, recombinant SefD. Furthermore, unusually long, thin, **fimbriae** -like structures were evident on S. **enteritidis** and Escherichia coli by immunoelectron microscopy, but in other bacterial species SefD was expressed as amorphous material. Therefore, in S. **enteritidis** and E. coli, SefD is the predominant structural subunit of SEF18. The SEF18 **fimbriae** -like structures were shown to be serologically distinct from the three known S. **enteritidis**

fimbriae SEF14, SEF17 and SEF21. Furthermore, SEF18 was still produced in sefA insertion mutants, indicating that SEF14 and SEF18 were structurally distinct. Thus, the SEF14 gene cluster is the first example in the Enterobacteriaceae of a gene cluster that encodes two fimbrin-like proteins, which are assembled into two distinct cell-surface structures, SEF14 and SEF18. DNA hybridization and Western blot analyses showed that SefD was widely distributed among the Enterobacteriaceae and was present in E. coli, Shigella, Enterobacter, Citrobacter, Erwinia, Hafnia, Klebsiella, Providencia, and Proteus but not in the non-Enterobacteriaceae Gram-negative bacteria Pseudomonas and Aeromonas, or in Gram-positive bacteria Bacillus or Staphylococcus.(ABSTRACT TRUNCATED AT 250 WORDS)

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Bacterial Proteins--genetics--GE; *Fimbriae Proteins; *Fimbriae, Bacterial--genetics--GE; *Multigene Family--genetics--GE; *Salmonella enteritidis--genetics--GE; Bacterial Proteins--biosynthesis--BI ; Bacterial Proteins--chemistry--CH; Bacterial Proteins--immunology--IM; Base Sequence; Cell Adhesion Molecules--genetics--GE; Cloning, Molecular; DNA, Bacterial--analysis--AN; Fimbriae, Bacterial--ultrastructure--UL; Genes, Structural, Bacterial--genetics--GE; Molecular Sequence Data; Molecular Weight; Open Reading Frames--genetics--GE; Recombinant Fusion Proteins--biosynthesis--BI; Salmonella enteritidis--cytology--CY; Sequence Analysis, DNA; Species Specificity

Molecular Sequence Databank No.: GENBANK/U07129

CAS Registry No.: 0 (Bacterial Proteins); 0 (Cell Adhesion Molecules) ; 0 (DNA, Bacterial); 0 (Recombinant Fusion Proteins); 0 (SefD protein, Salmonella); 0 (sefA protein, Salmonella enteritidis); 147680-16-8 (Fimbriae Proteins)

Gene Symbol: sefD

Record Date Created: 19941107

Record Date Completed: 19941107

6/9/25 (Item 25 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10617731 PMID: 7911840

Passive immunisation against experimental salmonellosis in mice by orally administered hen egg-yolk antibodies **specific for 14-kDa** fimbriae **of Salmonella** enteritidis .

Peralta R C; Yokoyama H; Ikemori Y; Kuroki M; Kodama Y

Immunology Research Institute, Gifu City, Japan.

Journal of medical microbiology (SCOTLAND) Jul 1994, 41 (1) p29-35, ISSN 0022-2615 Journal Code: 0224131

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Chickens were immunised with a preparation of purified 14-kDa **fimbriae** of Salmonella serotype **Enteritidis** (SEF 14) to raise egg-yolk antibodies for protection trials in mice against subsequent challenge-exposure with the homologous strain of **Enteritidis** . A pronounced specificity of egg-yolk **antibodies** against the 14-kDa **fimbrial** antigen was demonstrated by Western blotting analysis. Passive **antibody** protection was evaluated in a mouse model of experimental salmonellosis: 79 mice (CD 1 strain) were challenged orally with 2 x 10(10) cfu of **Enteritidis** . Test

mice treated with SEF-14 **antibodies** (titre = 128) had a survival rate of 77.8% compared to 32% survival in control mice fed normal egg-yolk **antibodies** (titre < 10) ($p < 0.01$). In-vitro adhesion of **Enteritidis** to mouse intestinal epithelial cells was reduced by anti- **fimbrial** **antibodies** . An indirect immunofluorescence method demonstrated the localisation of **Enteritidis** along the villous margins of the small intestine of control mice, whereas in test mice adherent bacteria were not detected. Results suggest that 14-kDa **fimbriae** may influence, enhance or contribute to the overall adhesive properties of **Enteritidis** and that egg-yolk **antibodies** directed against these **fimbriae** may have played a substantial role in protection, possibly by minimising bacterial colonisation and invasion during the early stages of infection.

Descriptors: ***Antibodie** s, Bacterial--therapeutic use--TU; * **Fimbriae** , Bacterial--immunology--IM; *Immunization, Passive; *Salmonella Infections, Animal--prevention and control--PC; *Salmonella **enteritidis** --immunology --IM; Administration, Oral; Animals; Antibodies, Bacterial--administration and dosage--AD; Antibody Specificity; Bacterial Adhesion; Blotting, Western ; Chickens; Disease Models, Animal; Egg Yolk--immunology--IM; Fluorescent Antibody Technique; Intestine, Small--microbiology--MI; Mice; Microvilli --microbiology--MI; Salmonella enteritidis--pathogenicity--PY; Salmonella enteritidis--ultrastructure--UL; Virulence

CAS Registry No.: 0 (Antibodies, Bacterial)

Record Date Created: 19940721

Record Date Completed: 19940721

6/9/26 (Item 26 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10558784 PMID: 8155479

Serological diagnosis of Salmonella serotype enteritidis infections in poultry by ELISA and other tests.

Barrow P A

Institute for Animal Health, Compton Laboratory, Newbury, Berkshire, England, UK.

International journal of food microbiology (NETHERLANDS) Jan 1994, 21 (1-2) p55-68, ISSN 0168-1605 Journal Code: 8412849

Publishing Model Print

Document type: Journal Article; Review; Review, Tutorial

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Serological methods have increasingly been used for the detection of invasive Salmonella serotypes including **enteritidis** in poultry. Different types of ELISA, particularly indirect or double **antibody** -blocking assays using a variety of antigens such as lipopolysaccharide, **flagella** and SEF14 **fimbrial** antigen are used as part of control programmes in a number of countries. There are many advantages to using such assays for preliminary screening of flocks prior to using bacteriological culture methods. (63 Refs.)

Descriptors: *Antibodies, Bacterial--blood--BL; *Enzyme-Linked Immunosorbent Assay--veterinary--VE; *Poultry Diseases--diagnosis--DI; *Salmonella Infections, Animal--diagnosis--DI; *Salmonella enteritidis --immunology--IM; Agglutination Tests--veterinary--VE; Animals; Antigens, Bacterial--diagnostic use--DU; Immunoglobulin G--blood--BL; Poultry

CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Antigens, Bacterial);

0 (Immunoglobulin G)
Record Date Created: 19940519
Record Date Completed: 19940519

6/9/27 (Item 27 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10558783 PMID: 8155478
The use of latex particle agglutination to specifically detect Salmonella enteritidis.
Thorns C J; McLaren I M; Sojka M G
Department of Bacteriology, Central Veterinary Laboratory, New Haw, Addelestone, Surrey, England, UK.
International journal of food microbiology (NETHERLANDS) Jan 1994, 21 (1-2) p47-53, ISSN 0168-1605 Journal Code: 8412849
Publishing Model Print
Document type: Journal Article; Review; Review, Tutorial
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
This paper reviews the development and evaluation of a latex particle agglutination test to specifically identify cultured Salmonella **enteritidis** organisms. The test is based on the use of two monoclonal **antibody** -coated latex reagents, one of which detects the recently discovered SEF14 **fimbriae** expressed predominantly by S. **enteritidis** and S. dublin organisms, while the second reagent detects the H'p' antigen of S. dublin **flagella** . In a series of field trials 141 out of 142 strains of S. **enteritidis** from eighteen phage types were correctly identified by the latex test. A further 175 salmonella isolates representing 35 serotypes were tested and only two false-positives (S. dublin) in the latex test were recorded. This is the first rapid serotype specific test for S. **enteritidis** to be developed, and highlights the potential advantage of **fimbrial** antigens as novel diagnostic antigens of the future. (13 Refs.)
Descriptors: *Latex Fixation Tests; *Salmonella Food Poisoning --microbiology--MI; *Salmonella enteritidis--isolation and purification--IP ; Animals; Humans; Salmonella Food Poisoning--diagnosis--DI; Salmonella enteritidis--classification--CL; Sensitivity and Specificity; Serotyping
Record Date Created: 19940519
Record Date Completed: 19940519

6/9/28 (Item 28 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10443679 PMID: 8122348
Serological detection of chicken flocks naturally infected with Salmonella enteritidis **, using an enzyme-linked immunosorbent assay based on monoclonal** antibodies **against the** flagellar **antigen.**
van Zijderveld F G; van Zijderveld-van Bemmel A M; Brouwers R A; de Vries T S; Landman W J; de Jong W A
Department of Bacteriology, DLO-Central Veterinary Institute, Lelystad, The Netherlands.
Veterinary quarterly (NETHERLANDS) Dec 1993, 15 (4) p135-7, ISSN 0165-2176 Journal Code: 7909485

Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

The Dutch Salmonella enteritidis monitoring and eradication programme for poultry prescribes a periodic examination of all breeding flocks for the presence of S. enteritidis. For the first years of the programme this was done by bacteriological examination of 50 faecal samples per visit per flock. In this study we compare the results of bacteriological examination of faecal samples taken at 1580 visits from 545 flocks with those of a S. enteritidis enzyme-linked immunosorbent assay (ELISA) applied on 24 serum samples per visit per flock. Two flocks were found positive for S. enteritidis by bacteriological examination; both flocks were also detected by ELISA. Ten flocks, bacteriologically negative for S. enteritidis were found positive by ELISA. S. enteritidis was isolated from three of these flocks by repeated and extensive bacteriological examination for verification. Verification was not possible in the fourth ELISA positive flock. S. enteritidis infections were likely in three other flocks because of the farm histories. On the basis of the results of this study it was decided to use this ELISA, starting from April 1992, as screening technique in the Dutch S. enteritidis programme instead of bacteriological examination of faecal samples. The ELISA is regarded as a flock test; an extensive, confirmatory bacteriological investigation for S. enteritidis is carried out in ELISA positive flocks to decide whether the flocks are truly infected.

Tags: Comparative Study
Descriptors: *Antigens, Bacterial--immunology--IM; *Chickens --microbiology--MI; *Flagella--immunology--IM; *Poultry Diseases --microbiology--MI; *Salmonella Infections, Animal--diagnosis--DI; *Salmonella enteritidis--immunology--IM; Animals; Antibodies, Bacterial --analysis--AN; Antibodies, Monoclonal--analysis--AN; Enzyme-Linked Immunosorbent Assay--veterinary--VE; Microbiological Techniques--veterinary --VE; Poultry Diseases--diagnosis--DI; Salmonella enteritidis--isolation and purification--IP
CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Antibodies, Monoclonal); 0 (Antigens, Bacterial)
Record Date Created: 19940404
Record Date Completed: 19940404

6/9/29 (Item 29 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10395829 PMID: 7903640
Outer membrane characteristics of Salmonella enteritidis phage type 4 growing in chickens.
Chart H; Conway D; Rowe B
Laboratory of Enteric Pathogens, Central Public Health Laboratory, London, UK.
Epidemiology and infection (ENGLAND) Dec 1993, 111 (3) p449-54, ISSN 0950-2688 Journal Code: 8703737
Publishing Model Print
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Strains of Salmonella enteritidis belonging to phage type 4 (SE4) were grown in the peritoneal cavities of chickens, and without subculture on laboratory media examined for inducible in vivo phenotypic characteristics. These bacteria expressed three major outer membrane proteins (OMPs) of 33, 35 and 36 kilodaltons (kDa), and iron regulated OMPs of 74, 78 and 81 kDa. Bacteria growing in vivo did not express flagella, or fimbriae with a subunit molecular mass of 14 kDa (14 kDa fimbriae). Two OMPs of 55 and 23 kDa, expressed during culture in nutrient broth, were repressed during growth in chickens. Possession of a 38 MDa 'mouse virulence' plasmid did not influence the expression of OMPs, flagella or fimbriae. It was concluded that strains of SE4 growing in chicken tissues, use an enterobactin mediated iron uptake system to obtain ferric ions, do not express flagella or 14 kDa fimbriae and appear not to express novel OMPs involved in survival in vivo.

Tags: Female

Descriptors: *Bacterial Outer Membrane Proteins--analysis--AN; *Chickens --microbiology--MI; *Salmonella enteritidis--chemistry--CH; Animals; **Antibodies** , Bacterial--blood--BL; Bacteriophage Typing; Cell Membrane --chemistry--CH; Enzyme-Linked Immunosorbent Assay; **Fimbriae** , Bacterial; **Flagella** ; Lipopolysaccharides--immunology--IM; Peritoneal Cavity --microbiology--MI; Salmonella **enteritidis** --classification--CL; Salmonella **enteritidis** --ultrastructure--UL

CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Bacterial Outer Membrane Proteins); 0 (Lipopolysaccharides)

Record Date Created: 19940131

Record Date Completed: 19940131

6/9/30 (Item 30 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10316325 PMID: 8104955

DNA-based diagnostic tests for Salmonella species targeting agfA, the structural gene for thin, aggregative fimbriae.

Doran J L; Collinson S K; Burian J; Sarlos G; Todd E C; Munro C K; Kay C M; Banser P A; Peterkin P I; Kay W W

Department of Biochemistry and Microbiology, University of Victoria, British Columbia, Canada.

Journal of clinical microbiology (UNITED STATES) Sep 1993, 31 (9) p2263-73, ISSN 0095-1137 Journal Code: 7505564

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Salmonella **enteritidis** 27655-3b and a few diarrheagenic Escherichia coli strains produce morphologically and antigenically related, thin, aggregative **fimbriae** , collectively named GVVPQ **fimbriae** (S. K. Collinson, L. Emody, T. J. Trust, and W. W. Kay, J. Bacteriol. 174:4490-4495, 1992). To determine whether GVVPQ **fimbriae** are common to Salmonella spp. and other enteropathogenic members of the family Enterobacteriaceae, 113 isolates were phenotypically screened for Congo red binding and aggregative colony morphology. Presumptive positive and representative negative strains were examined by Western blotting (immunoblotting) by using **antiserum** to SEF 17, the native GVVPQ **fimbria**

of S. **enteritidis** . Only four S. **enteritidis** strains and six E. coli isolates possessed substantial amounts of GVVPQ **fimbriae** after 24 h of incubation on T medium. Following 5 days of incubation, 56 of 93 Salmonella isolates (60%) and 1 of 7 additional E. coli clinical isolates possessed detectable levels of GVVPQ **fimbriae** . Since variable expression of GVVPQ **fimbriae** was observed among Salmonella isolates and some E. coli strains produced scant amounts, as revealed by immunoelectron microscopy, the ability to produce these **fimbriae** was evaluated by genotypic screening. The structural gene for the SEF 17 fimbrin, agfA, was amplified by the polymerase chain reaction, cloned, and sequenced to provide a characterized DNA probe. An agfA DNA fragment hybridized strongly to 603 of 604 (99.8%) Salmonella isolates but very weakly to 31 of 266 other members of the family Enterobacteriaceae including 26 of 137 E. coli strains, 3 of 14 Citrobacter spp., and single isolates of Shigella sonnei and Enterobacter cloacae. The agfA DNA probe proved to be a valuable diagnostic tool for Salmonella isolates arrayed on hydrophobic grid membrane filters. Unique agfA sequences were targeted in the development of a polymerase chain reaction assay specific for Salmonella spp.

Tags: Research Support, Non-U.S. Gov't

Descriptors: *DNA Probes; *Fimbriae, Bacterial; *Genes, Structural, Bacterial; *Salmonella--genetics--GE; Amino Acid Sequence; Base Sequence; Humans; Molecular Sequence Data; Polymerase Chain Reaction; Salmonella --isolation and purification--IP; Salmonella Infections--diagnosis--DI

CAS Registry No.: 0 (DNA Probes)

Gene Symbol: agfA

Record Date Created: 19931102

Record Date Completed: 19931102

6/9/31 (Item 31 from file: 155)

10289260 PMID: 8371111

Cloning, DNA nucleotide sequence and distribution of the gene encoding the SEF14 fimbrial antigen of Salmonella enteritidis.

Turcotte C; Woodward M J

Molecular Genetics Unit, Central Veterinary Laboratory, Addlestone (Weybridge), Surrey, UK.

Journal of general microbiology (ENGLAND) Jul 1993, 139 (Pt 7) p1477-85, ISSN 0022-1287 Journal Code: 0375371

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Monoclonal **antibody** 69/25, specific for the Salmonella **enteritidis** **fimbrial** antigen (SEF14), was used to screen a pUC-based S. **enteritidis** gene library and a positive clone was identified. Subcloning experiments demonstrated that a 584 bp DraI DNA fragment was the minimal chromosomal segment capable of directing SEF14 antigen expression. Western blotting of Escherichia coli recombinants identified a gene product of M(r) 16000 as a precursor to the M(r) 14300 mature **fimbrial** subunit protein. The DNA nucleotide sequence of the DraI fragment was determined and was shown to contain a single open reading frame with two potential f-Met start codons and a hydrophobic signal sequence. Downstream of a putative peptidase cleavage site, the deduced amino acid sequence showed considerable homology with the N-terminal amino acid sequence of what was originally described as

the type 1 **fimbrial** subunit of Salmonella **enteritidis** and later redefined as SEF14. The gene encoding SEF14, designated as sefA, was shown to be limited in distribution to Salmonella blegdam, S. dublin, S. **enteritidis** , S. gallinarum, S. moscow, S. pullorum, S. rostock, S. seremban and S. typhi, all belonging to Salmonella group D. However, expression of the SEF14 antigen was limited to S. dublin, S. **enteritidis** , S. moscow and S. blegdam. The nucleotide sequence of the sefA gene shared no homology with the Salmonella fimA gene encoding type 1 **fimbriae** , and these genes showed distinct patterns of distribution within salmonellae.

Tags: Comparative Study

Descriptors: *Antigens, Bacterial--genetics--GE; *Bacterial Proteins --genetics--GE; *Fimbriae Proteins; *Genes, Structural, Bacterial--genetics --GE; *Salmonella enteritidis--genetics--GE; Amino Acid Sequence; Antibodies, Monoclonal; Base Sequence; Cloning, Molecular; Conserved Sequence; Gene Expression; Gene Library; Molecular Sequence Data; Regulatory Sequences, Nucleic Acid--genetics--GE; Salmonella typhimurium --genetics--GE; Sequence Alignment; Sequence Analysis, DNA; Sequence Homology, Nucleic Acid; Species Specificity

Molecular Sequence Databank No.: GENBANK/L03833

CAS Registry No.: 0 (Antibodies, Monoclonal); 0 (Antigens, Bacterial) ; 0 (Bacterial Proteins); 0 (fimbrillin); 0 (sefA protein, Salmonella enteritidis); 147680-16-8 (Fimbriae Proteins)

Gene Symbol: sefA

Record Date Created: 19931008

Record Date Completed: 19931008

6/9/52 (Item 4 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)

0011380645 BIOSIS NO.: 199800174892

Characterisation of eiptopes of type 1 fimbriae **of Salmonella using monoclonal** antibodies **specific for SEF21 fibriae of Salmonella** enteritidis

AUTHOR: Sojka Marcjanna G; Carter Michelle A; Thorns Christopher J (Reprint)

AUTHOR ADDRESS: Dep. Bacteriol., Cent. Vet. Lab., New Haw, Addlestone, Surrey KT15 3NB, UK**UK

JOURNAL: Veterinary Microbiology 59 (2-3): p157-174 Jan. 16, 1998 1998

MEDIUM: print

ISSN: 0378-1135

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: Monoclonal **antibodies** (mAbs) were used to identify and characterise epitopes of type 1 (SEF21) **fimbriae** of Salmonella **enteritidis** . The distribution of the epitopes among salmonellas and other enterobacteria was investigated, as well as the influence of growth media and temperatures on their expression. At least four different epitope clusters were identified on SEF21 **fimbriae** of S. **enteritidis** . Two of these clusters were associated with **fimbrial** haemagglutinins that were either common to all salmonellae tested, or restricted only to S. **enteritidis** and S. dublin. The four epitope clusters were identified on type 1 **fimbriae** of most Salmonella serotypes, as well as non-haemagglutinating type 2 **fimbriae** of S. pullorum and S. gallinarum, and on many other enterobacterial species. The expression of the epitopes

was affected by growth conditions.

DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics
BIOSYSTEMATIC NAMES: Enterobacteriaceae--Facultatively Anaerobic Gram-Negative Rods, Eubacteria, Bacteria, Microorganisms
ORGANISMS: Salmonella-dublin (Enterobacteriaceae); Salmonella-enteritidis (Enterobacteriaceae); Salmonella-gallinarum (Enterobacteriaceae); Salmonella-pullorum (Enterobacteriaceae)
ORGANISMS: PARTS ETC: SEF21 fimbriae
COMMON TAXONOMIC TERMS: Bacteria; Eubacteria; Microorganisms
CHEMICALS & BIOCHEMICALS: monoclonal antibodies
MISCELLANEOUS TERMS: epitope characterization
CONCEPT CODES:
30000 Bacteriology, general and systematic
10060 Biochemistry studies - General
BIOSYSTEMATIC CODES:
06702 Enterobacteriaceae

6/9/53 (Item 5 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0010029798 BIOSIS NO.: 199598497631
Rapid detection of Salmonella enteritidis in pooled liquid egg samples using a magnetic bead-ELISA system
AUTHOR: Holt Peter S; Gast Richard K; Greene Cam R
AUTHOR ADDRESS: U.S. Dep. Agric., Agric. Res. Serv., Southeast Poult. Res. Lab., Athens, GA 30605, USA**USA
JOURNAL: Journal of Food Protection 58 (9): p967-972 1995 1995
ISSN: 0362-028X
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: An assay was developed to shorten the time necessary to detect Salmonella **enteritidis** (SE) in contaminated egg pools. The immunomagnetic separation (IMS)-based assay used the DynabeadsTM Anti-Salmonella, a magnetic bead with mouse anti-Salmonella **antibodies** affixed to the surface, to bind the SE in the egg pools. The bound SE were concentrated by a magnet and were detected via an enzyme-linked immunosorbent assay (ELISA) (IMS-ELISA) employing a monoclonal anti-SE **flagellar** proteins (**flagellins**) **antibody** . Following the ELISA, the beads were plated onto differential media (IMS-direct). The efficacy of the assay for detecting SE was compared with that of the standard assay, direct plating, in pooled egg samples spiked with low concentrations of SE and incubated at 37 degree C for 24 to 96 h. Conventional direct plating of egg samples required a total of 48 h before SE could be identified in egg pools, compared with 24 h for the IMS-ELISA. Plating of the beads (IMS-direct) to confirm the presence of SE required a further 24 h. The IMS-ELISA could detect SE at concentrations of 10-5 to 10-6 SE cells per ml, comparable to that shown previously for direct plating. The IMS-direct could detect SE at 10-4 SE cells per ml of egg pool. In egg pools initially contaminated with 10 SE cells per ml, the organism grew to levels by 24 h at 37 degree C where 100% of the pools were positive for SE by all three detection methods. In egg pools initially contaminated with 1 SE cell per ml, 61% of pools were detected by direct plating and IMS-ELISA and 72% were detected by IMS-direct. Similar

detection frequencies were observed for a second SE isolate. The IMS-ELISA provides an SE detection rate comparable to direct plating but achieves the result 24 h sooner. The IMS-direct was the most sensitive means of detecting the SE.

DESCRIPTORS:
MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology; Foods; Infection; Methods and Techniques; Physiology; Public Health--Allied Medical Sciences; Toxicology; Vector Biology
BIOSYSTEMATIC NAMES: Bacteria--Microorganisms; Enterobacteriaceae--Facultatively Anaerobic Gram-Negative Rods, Eubacteria, Bacteria, Microorganisms; Microorganisms--Microorganisms
ORGANISMS: bacteria (Bacteria); Salmonella enteritidis (Enterobacteriaceae); microorganism (Microorganisms)
COMMON TAXONOMIC TERMS: Bacteria; Eubacteria; Microorganisms
MISCELLANEOUS TERMS: poultry industry; ANALYTICAL METHOD; DETECTION METHODS; DIRECT PLATING; FOOD CONTAMINATION; FOOD PRODUCTS; HUMAN FOOD POISONING
CONCEPT CODES:
01004 Methods - Laboratory methods
01006 Methods - Laboratory apparatus
10010 Comparative biochemistry
10054 Biochemistry methods - Proteins, peptides and amino acids
10064 Biochemistry studies - Proteins, peptides and amino acids
10068 Biochemistry studies - Carbohydrates
10504 Biophysics - Methods and techniques
10506 Biophysics - Molecular properties and macromolecules
10508 Biophysics - Membrane phenomena
10610 External effects - Electric, magnetic and gravitational phenomena
10618 External effects - Temperature as a primary variable - hot
13520 Food technology - Poultry and eggs
13530 Food technology - Evaluations of physical and chemical properties
13532 Food technology - Preparation, processing and storage
22502 Toxicology - Foods, food residues, additives and preservatives
30500 Morphology and cytology of bacteria
31000 Physiology and biochemistry of bacteria
32000 Microbiological apparatus, methods and media
34502 Immunology - General and methods
34504 Immunology - Bacterial, viral and fungal
36001 Medical and clinical microbiology - General and methods
36002 Medical and clinical microbiology - Bacteriology
37006 Public health - Public health laboratory methods
37060 Public health: disease vectors - Inanimate
37400 Public health: microbiology - Public health microbiology
39002 Food microbiology - Food and beverage spoilage and contamination
BIOSYSTEMATIC CODES:
05000 Bacteria
06702 Enterobacteriaceae
01000 Microorganisms
? logoff hold
06jul05 09:31:44 User228206 Session D2460.4
$0.90 0.265 DialUnits File155
$6.51 31 Type(s) in Format 9
$6.51 31 Types
$7.41 Estimated cost File155
$0.20 0.033 DialUnits File5
$4.00 2 Type(s) in Format 9
$4.00 2 Types
$4.20 Estimated cost File5
$0.12 0.011 DialUnits File73

```
    $0.12  Estimated cost File73
           $0.05    0.011 DialUnits File349
    $0.05  Estimated cost File349
           $0.03    0.011 DialUnits File10
    $0.03  Estimated cost File10
           $0.14    0.011 DialUnits File399
    $0.14  Estimated cost File399
           $0.07    0.011 DialUnits File654
    $0.07  Estimated cost File654
           $0.05    0.011 DialUnits File35
    $0.05  Estimated cost File35
           $0.03    0.011 DialUnits File203
    $0.03  Estimated cost File203
           $0.06    0.011 DialUnits File348
    $0.06  Estimated cost File348
           $0.05    0.011 DialUnits File444
    $0.05  Estimated cost File444
           $0.03    0.011 DialUnits File143
    $0.03  Estimated cost File143
           $0.06    0.011 DialUnits File16
    $0.06  Estimated cost File16
           $0.23    0.011 DialUnits File357
    $0.23  Estimated cost File357
           $0.04    0.011 DialUnits File94
    $0.04  Estimated cost File94
           $0.05    0.011 DialUnits File98
    $0.05  Estimated cost File98
           $0.19    0.011 DialUnits File340
    $0.19  Estimated cost File340
           $0.04    0.011 DialUnits File65
    $0.04  Estimated cost File65
           OneSearch, 18 files,  0.474 DialUnits FileOS
    $0.26  TELNET
   $13.11  Estimated cost this search
   $13.11  Estimated total session cost   0.474 DialUnits

Logoff: level 05.05.00 D  09:31:44
```

```
     Set  Items  Description
      ---  -----  -----------
Cost is in DialUnits
? s
Terminal set to DLINK
? t s6/9/55 59 61 77 79 88 90 91 97 102
>>>Null command ignored
? t s6/9/55 59 61 77 79 88 90 91 97 102

 6/9/55      (Item 7 from file: 5)
DIALOG(R)File   5:Biosis Previews(R)
(c) 2005 BIOSIS. All rts. reserv.

0009531624   BIOSIS NO.: 199497552909
A rapid immunoblotting procedure for detecting serum antibodies to
  Salmonella enteritidis
AUTHOR: Chart Henrik (Reprint); Waghorn D J; Rowe B
AUTHOR ADDRESS:. Lab. Enteric Pathogens, Central Public Health Lab., 61
  Colindale Ave., London NW9 5HT, UK**UK
JOURNAL: Letters in Applied Microbiology  19 (3): p177-178 1994 1994
ISSN: 0266-8254
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: An immunoblotting method, which can be completed in 1 d, is
  described for the detection of human serum  antibodies  to Salmonella
  enteritidis  lipopolysaccharide and  flagella .

DESCRIPTORS:
  MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Blood and
    Lymphatics--Transport and Circulation; Immune System--Chemical
    Coordination and Homeostasis; Infection; Toxicology
  BIOSYSTEMATIC NAMES: Enterobacteriaceae--Facultatively Anaerobic
    Gram-Negative Rods, Eubacteria, Bacteria, Microorganisms; Hominidae--
    Primates, Mammalia, Vertebrata, Chordata, Animalia
  ORGANISMS: Salmonella enteritidis (Enterobacteriaceae); human (Hominidae)
  COMMON TAXONOMIC TERMS: Bacteria; Eubacteria; Microorganisms; Animals;
    Chordates; Humans; Mammals; Primates; Vertebrates
  MISCELLANEOUS TERMS:   ANALYTICAL METHOD; ENDOTOXIN; IMMUNOLOGIC METHOD;
    LIPOPOLYSACCHARIDE
CONCEPT CODES:
  10054 Biochemistry methods - Proteins, peptides and amino acids
  10058 Biochemistry methods - Carbohydrates
  10064 Biochemistry studies - Proteins, peptides and amino acids
  10066 Biochemistry studies - Lipids
  10068 Biochemistry studies - Carbohydrates
  15002 Blood - Blood and lymph studies
  22501 Toxicology - General and methods
  31000 Physiology and biochemistry of bacteria
  34502 Immunology - General and methods
  34504 Immunology - Bacterial, viral and fungal
  36002 Medical and clinical microbiology - Bacteriology
BIOSYSTEMATIC CODES:
  06702 Enterobacteriaceae
  86215 Hominidae


 6/9/59      (Item 11 from file: 5)
```

DIALOG(R)File 5:Biosis Previews(R)

0002088374 BIOSIS NO.: 197763009230
SEROLOGIC IDENTIFICATION OF SALMONELLA
AUTHOR: GRADOS B O; GREVE U E
JOURNAL: Boletin del Instituto Bacteriologico de Chile 17 (1-2): p3-11 1975
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: Unspecified

ABSTRACT: Detailed laboratory procedures for the diagnosis of Salmonella spp. and the serological identification of individual types and strains are reviewed, including the preparation of O (somatic) antigen, the use of polyvalent and Vi **antisera** , the use of group **antisera** and O factors. Individual attention is given to the identification of **flagellar** (H) antigens and the use of 1st and 2nd phase **flagellar antisera** , and factor H **antisera** . S. cholerae-suis, S. typhi and S. **enteritidis** are of the most common interest. A list of the more common 49 types are supplied. The slide agglutination technique is suggested for the determination of somatic antigens; the tube agglutination technique is recommended for **flagellar** antigen determination. The centralization of serotyping services is advocated for Salmonella identification and other purposes.

DESCRIPTORS: SALMONELLA-TYPHI SALMONELLA-CHOLERAE-SUIS SALMONELLA-ENTERITIDIS SALMONELLA-SPP O ANTIGEN H ANTIGEN VI ANTIGEN TUBE AGGLUTINATION SLIDE AGGLUTINATION SEROTYPING SERVICE CENTRALIZATION
DESCRIPTORS:
MAJOR CONCEPTS: Immune System--Chemical Coordination and Homeostasis; Infection; Public Health--Allied Medical Sciences; Serology--Allied Medical Sciences
BIOSYSTEMATIC NAMES: Bacteria--Microorganisms
COMMON TAXONOMIC TERMS: Bacteria; Eubacteria; Microorganisms
CONCEPT CODES:
10064 Biochemistry studies - Proteins, peptides and amino acids
10066 Biochemistry studies - Lipids
10068 Biochemistry studies - Carbohydrates
12504 Pathology - Diagnostic
15002 Blood - Blood and lymph studies
30500 Morphology and cytology of bacteria
31000 Physiology and biochemistry of bacteria
34502 Immunology - General and methods
34504 Immunology - Bacterial, viral and fungal
36001 Medical and clinical microbiology - General and methods
36002 Medical and clinical microbiology - Bacteriology
36504 Medical and clinical microbiology - Serodiagnosis
37006 Public health - Public health laboratory methods
37400 Public health: microbiology - Public health microbiology
BIOSYSTEMATIC CODES:
05000 Bacteria

6/9/61 (Item 1 from file: 73)
DIALOG(R)File 73:EMBASE

07098920 EMBASE No: 1997380784

Serological response of patients infected with Salmonella typhi
Chart H.; Rowe B.; Cheesbrough J.S.
Dr. H. Chart, Laboratory of Enteric Pathogens, Central Public Health Laboratory, 61 Colindale Avenue, London NW9 5HT United Kingdom
Journal of Clinical Pathology (J. CLIN. PATHOL.) (United Kingdom) 1997 , 50/11 (944-946)
CODEN: JCPAA ISSN: 0021-9746
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 10

Aims - To evaluate a rapid immunoblotting procedure for providing evidence of infection with Salmonella typhi using 73 sera from patients infected with S typhi. Methods - A sodium dodecyl sulphate-polyacrylamide gel electrophoresis (SDS-PAGE)/immunoblotting procedure using lipopolysaccharide (LPS, O=9,12) and flagellar (H=d) antigens was used. Results - Seventy two of 73 sera contained antibodies to LPS, 40 sera also contained antibodies to H=d flagellar antigens. Analysis of acute and convalescent sera showed that only 62% of patients produced antibodies to flagellar antigens. Conclusions - The SDS-PAGE/immunoblotting procedure provided a rapid method for providing serological evidence of infection with S typhi.

DRUG DESCRIPTORS:
*bacterial antigen; *bacterium antibody--endogenous compound--ec; *bacterium lipopolysaccharide
dodecyl sulfate sodium
MEDICAL DESCRIPTORS:
*salmonella typhi; *salmonellosis
adult; **antibody** response; article; clinical article; controlled study; female; **flagellum** ; human; human tissue; immunoblotting; male; polyacrylamide gel electrophoresis; priority journal; salmonella **enteritidis** ; serology
CAS REGISTRY NO.: 151-21-3 (dodecyl sulfate sodium)
SECTION HEADINGS:
004 Microbiology: Bacteriology, Mycology, Parasitology and Virology
005 General Pathology and Pathological Anatomy
026 Immunology, Serology and Transplantation

6/9/77 (Item 1 from file: 10)
DIALOG(R)File 10:AGRICOLA

3600531 10830473 Holding Library: DNLM/DLC; DLC; NLM; SQU; DAY; AGL
Mechanisms in the pathogenesis of enteric diseases / edited by Prem S. Paul, David H. Francis, and David A. Benfield
Paul, Prem S.; Francis, David H.; Benfield, David A.
International Rushmore Conference on Mechanisms in the Pathogenesis of Enteric Diseases (1st : 1995 : Rapid City, S.D.)
New York : Plenum Press, c1997.
xii, 439 p. : ill. ; 26 cm.
Advances in experimental medicine and biology, v. 412
LCCN: 97005561
ISBN: 0306455196
DNAL CALL NO: QP901.A33 v.412
Language: English
"Proceedings of the First International Rushmore Conference on Mechanisms in the Pathogenesis of Enteric Diseases, held September 28-30, 1995, in

Rapid City, South Dakota"--T.p. verso.
Includes bibliographical references and index.
Contents: Comparative histopathology of intestinal infections -- Neuro-**immune** pathobiology of infectious enteric disease -- Application of intestinal xenografts to the study of enteropathogenic infectious disease -- An overview of immunological and genetic methods for detecting swine coronaviruses, transmissible gastroenteritis virus, and porcine respiratory coronavirus in tissues -- Pathogenesis of O157:H7 Escherichia coli infection in neonatal calves -- Variation in virulence in the gnotobiotic pig model of O127:H7 Escherichia coli strains of bovine and human origin -- Attaching and effacing E.coli: microscopic and ultrastructural observations of intestinal infections in pigs -- Dynamics of Clostridium difficile infection: control using diet -- Detection and differentiation of 3 K88 serogroups using polymerase chain reaction techniques: K88 serogroup detection and differentiation -- Specific identification of Escherichia coli O157:H7 using a multiplex PCR assay -- Variation in manifestation of E. coli H7 antigen -- Verotoxigenic Escherichia coli in slaughter cattle and ground beef in South Dakota -- **Immunoglobulin** response to Salmonella **enteritidis** outer membrane proteins: use for evaluating infectious status -- Sequence analysis of VP7 gene of a bovine rotavirus with G6 subtype -- Detection of the **fimbrial** gene F18(F107) from swine enteritis Escherichia coli -- A chick model for the study of "attaching and effacing Escherichia coli" infection -- Immunological cross reactivity of EAEA(Intimin) from E.coli that cause attaching and effacing lesions in humans and rabbits.
Place of Publication: New York
Subfile: OTHER US (NOT EXP STN, EXT, USDA; SINCE 12/76); 1;
Document Type: Monograph; Bibliographies
DESCRIPTORS: Infection; Communicable diseases;
Section Headings: L830 ANIMAL DISEASES-GENERAL; X380 HUMAN MEDICINE

6/9/79 (Item 3 from file: 10)
DIALOG(R)File 10:AGRICOLA

3251109 93003479 Holding Library: AGL
Comparison of four different enzyme-linked immunosorbent assays for serological diagnosis of Salmonella enteritidis infections in experimentally infected chickens
Zijderveld, F.G. van Zijderveld-van Bemmel, A.K. van; Anakotta, J.
DLO-Central Veterinary Institute, Lelystad, The Netherlands
Washington, D.C. : American Society for Microbiology.
Journal of clinical microbiology. Oct 1992. v. 30 (10) p. 2560-2566.
ISSN: 0095-1137 CODEN: JCMIDW
DNAL CALL NO: QR46.J6
Language: English
Includes references.
Subfile: OTHER US (NOT EXP STN, EXT, USDA; SINCE 12/76);
Document Type: Article
The program for the eradication of Salmonella **enteritidis** from chickens in The Netherlands is based on bacteriological examination of breeding flocks. There is a great need for a specific and sensitive serological screening test. For that purpose, we developed four different enzyme-linked immunosorbent assays (ELISAs), i.e., an indirect ELISA with S. **enteritidis** **flagellin** , an indirect ELISA with S. **enteritidis** lipopolysaccharide, a double- **antibody** sandwich blocking ELISA that uses monoclonal **antibodies** against S. **enteritidis** **flagellin** (GM-DAS blocking ELISA), and a double- **antibody** sandwich ELISA that uses monoclonal **antibodies** against

S. **enteritidis** lipopolysaccharide. In the present study, we compare the results of those ELISAs with sera from experimentally infected 1-day-old chickens and with sera and eggs from experimentally infected laying hens. Experimental infections were induced with strains of S. **enteritidis** phage types 1 and 2, S. typhimurium, and S. panama. Sera were collected up to days 44 and 39 after infection from 1-day-old chickens and laying hens, respectively. Only the GM-DAS blocking ELISA was able to discriminate between S. **enteritidis** infections and infections with the other serotypes. This ELISA bad both a sensitivity and a specificity of 100% for all serum samples from experimentally infected chickens. A field study is in progress to evaluate whether this test can be implemented in the Dutch S. **enteritidis** eradication program.

DESCRIPTORS: fowls; salmonella enteritidis; serum; ova; experimental infections; immunodiagnosis; elisa;

Identifiers: indirect elisa; double-antibody sandwich elisa; double-antibody sandwich blocking elisa

Section Headings: L832 ANIMAL DISEASES-BACTERIAL

6/9/88 (Item 3 from file: 35)

01520121 ORDER NO: AAD96-38280

STUDIES ON THE MECHANISM OF TRANSOVARIAN TRANSMISSION OF SALMONELLA ENTERITIDIS IN LAYING HENS (EGG CONTAMINATION)

Author: THIAGARAJAN, DORAIRAJAN
Degree: PH.D.
Year: 1995
Corporate Source/Institution: PURDUE UNIVERSITY (0183)
Major Professors: A. M. SAEED; H. L. THAKER

Source: VOLUME 57/07-B OF DISSERTATION ABSTRACTS INTERNATIONAL. PAGE 4188. 193 PAGES
Descriptors: BIOLOGY, MICROBIOLOGY ; AGRICULTURE, FOOD SCIENCE AND TECHNOLOGY ; AGRICULTURE, ANIMAL CULTURE AND NUTRITION
Descriptor Codes: 0410; 0359; 0475

Food poisoning caused by Salmonella enteritidis following consumption of contaminated shell eggs is a major public health concern. Epidemiological and microbiological investigations indicated that in vivo contamination of the egg occurs in the reproductive tract of the laying hen. The present study was conducted to understand the contamination of yolk prior to ovulation. After oral inoculations of 140 laying hens with S. **enteritidis** , the organism was isolated from the preovulatory follicles in 16 birds (from follicle membrane alone in 10 birds, from the follicle yolk alone in four birds and from both membrane and yolk in two birds). This suggested that S. **enteritidis** interacted with cellular component(s) in the follicular wall. Chicken ovarian granulosa cells, a component of the follicular wall, were cultured in vitro and were used to demonstrate three different patterns of S. **enteritidis** attachment to these cells namely, local, diffuse, and aggregative. In addition, S. **enteritidis** can invade the granulosa cells in vitro and multiply in the cytoplasm. Preincubation of bacteria with the tetrapeptide arginine-glycine-aspartate-serine, the amino acid sequence known to mediate the interaction of adhesive glycoproteins with cells, inhibited in vitro attachment of bacteria to granulosa cells. Preincubation of granulosa cells with anti-chicken fibronectin serum or a purified 14 kilodalton **fimbrial** protein inhibited bacterial attachment to granulosa cells in vitro. Laying hens were orally

inoculated with two strains of S. **enteritidis** with different **fimbrial** proteins (21 kilodalton and 14 kilodalton) and one strain without **fimbriae** . Decreased cecal colonization and fecal shedding of the organism were observed in hens that were inoculated with the strain that did not express surface **fimbriae** compared to birds inoculated with other two strains ($P < .05).$ Mean serum **antibody** titers of birds inoculated with this strain were also lower than titers of hens inoculated with the other two strains. Immunoblot of bacterial outer membrane structures revealed **antibodies** against major membrane associated proteins, 14 kilodalton **fimbriae** and lipopolysaccharide. **Fimbrial** proteins may mediate attachment of S. **enteritidis** to cecal epithelium and are able to elicit serum **antibodies** after oral inoculation.

6/9/90 (Item 1 from file: 203)

02538478 AGRIS No: 2003-026468

Simplified preparation of a specific Salmonella enteritidis antigen for ELISA [enzyme linked immuno sorbent assay] and other immunological techniques

Zamora, B.M. (Tropical Biological Phils., Inc., 92 Matatag St., Diliman, Quezon City (Philippines)) Hartung, M.; Hildebrandt, G.; Kaesbohrer, A.

Conference Title: 27. Annual Convention of the Philippine Society for Microbiology, Inc.

Conference Location and Year: Manila (Philippines), 7-8 May 1998

Proceedings of the 27th Annual Convention of the Philippine Society for Microbiology, Inc.

Philippine Society for Microbiology, Inc., c/o De La Salle Univ. Taft Ave., Manila (Philippines)

Publisher: , Manila (Philippines), 1998, 274 p., p. 92-101

Notes: Received Jun 2002

Notes: 1 ill.; 3 tables; 19 ref.

Language: English Summary Language: English

Place of Publication: Philippines

Availability: Philippines Center

Document Type: Analytic, Monograph, Summmary, Conference, Nonconventional Literature

Journal Announcement: 2909 Record input by Philippines

A specific Salmonella **enteritidis** antigen preparation consisting of **fimbrial** and **flagellar** fractions was produced using a simple preparation and separation techniques. The applied purification techniques were filtration and concentration. The presence of the **fimbrial** fraction SEF14 in the antigen preparation was demonstrated primarily with the help of a latex agglutination test (SEFEX**R). This fraction was seen in immunoblots as a 14KD-band which related positively with sera from bacteriologically S. **enteritidis** -positive flocks and negatively with sera from bacteriologically S. **enteritidis** -negative and S. typhimurium-positive flocks. The same immunological reaction was shown by the **flagellar** fraction, which was seen as a wide protein band in the area between 54 and 56 KD. This fraction was further identified as H:g by testing the antigen with **antisera** against H:g and H:m-carrying serovars in the indirect ELISA. Strong reactions with H:g-carrying serovars S. **enteritidis** and S. suelldorf were detected, while no reaction could be demonstrated with closely related serovars S. typhimurium and S. gallinarum-pullorum. Consequently, the prepared FG-antigen was applied in

succeding studies on the serological detection of S. **enteritidis** infections in broilers using the indirect ELISA and chemiluminescent immunoassay (CLIA).
Descriptors in English: *BROILER CHICKENS; *SALMONELLA ENTERITIDIS; * ELISA; *ANTIGENS; BACTERIA; BIRDS; CHICKENS; DOMESTIC ANIMALS; ENTEROBACTERIACEAE; GALLIFORMES; IMMUNOENZYME TECHNIQUES; IMMUNOLOGICAL FACTORS; IMMUNOLOGICAL TECHNIQUES; LIVESTOCK; MEAT ANIMALS; POULTRY; SALMONELLA; USEFUL ANIMALS;

Descriptors in Spanish: *POLLO DE ENGORDE; *SALMONELLA ENTERITIDIS; * ELISA; *ANTIGENOS; ANIMALES DE CARNE; ANIMALES DOMESTICOS; ANIMALES UTILES; AVES DE CORRAL; BACTERIA; ENTEROBACTERIACEAE; FACTORES INMUNOLOGICOS; GALLIFORMES; GANADO; PAJAROS; POLLO; SALMONELLA; TECNICAS INMUNOENZIMATICAS; TECNICAS INMUNOLOGICAS;

Descriptors in French: *POULET DE CHAIR; *SALMONELLA ENTERITIDIS; *TEST ELISA; *ANTIGENE; ANIMAL A VIANDE; ANIMAL DOMESTIQUE; ANIMAL UTILE; BACTERIA; BETAIL; ENTEROBACTERIACEAE; FACTEUR IMMUNOLOGIQUE; GALLIFORMES ; OISEAU; POULET; SALMONELLA; TECHNIQUE IMMUNOENZYMATIQUE; TECHNIQUE IMMUNOLOGIQUE; VOLAILLE;
Section Headings: Q02 (FOOD SCIENCE -- Food processing and preservation)

6/9/91 (Item 2 from file: 203)
DIALOG(R)File 203:AGRIS

02241280 AGRIS No: 1998-053483
Characterisation of epitopes of type 1 fimbriae **of Salmonella using monoclonal** antibodies **specific for SEF21** fimbriae **of Salmonella** enteritidis
Thorns, C.J. (Central Veterinary Lab., New Haw, Addlestone, Surrey (United Kingdom). Dept. of Bacteriology); Sojka, M.G.; Carter, M.A.
Journal: Veterinary Microbiology, Jan 1998, v. 59(2-3) p. 157-174
Notes: 43 ref. ISSN: 0378-1135
Language: English Summary Language: English
Place of Publication: Netherlands
Document Type: Journal Article, Summmary
Journal Announcement: 2406 Record input by Netherlands

Descriptors in English: *SALMONELLA ENTERITIDIS; *MONOCLONAL ANTIBODIES; *ANTIGENS; *CULTURE MEDIA; *TEMPERATURE; ANTIBODIES; BACTERIA; ENTEROBACTERIACEAE; IMMUNOLOGICAL FACTORS; SALMONELLA;

Descriptors in Spanish: *SALMONELLA ENTERITIDIS; *ANTICUERPOS MONOCLONALES; *ANTIGENOS; *MEDIO DE CULTIVO; *TEMPERATURA; ANTICUERPOS ; BACTERIA; ENTEROBACTERIACEAE; FACTORES INMUNOLOGICOS; SALMONELLA;
Descriptors in French: *SALMONELLA ENTERITIDIS; *ANTICORPS MONOCLONAL; * ANTIGENE; *MILIEU DE CULTURE; *TEMPERATURE; ANTICORPS; BACTERIA; ENTEROBACTERIACEAE; FACTEUR IMMUNOLOGIQUE; SALMONELLA;
Section Headings: L73 (ANIMAL PRODUCTION -- Animal diseases)

6/9/97 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

04084158 Supplier Number: 45949166 (THIS IS THE FULLTEXT)
COLORIMETRIC PROBE ASSAY FOR DETECTION OF SALMONELLA ASSESSED

Food Chemical News, v37, n39, pN/A
Nov 20, 1995
ISSN: 0015-6337
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 620
TEXT:
The overall sensitivity of the GENE-TRAK colorimetric probe assay for the detection of foodborne Salmonella spp. was 90.7% and the specificity was 100%, according to a performance assessment using pure cultures and naturally contaminated foods and animal feed.

J. D'Aoust and colleagues, Food Directorate, Health Protection Branch, Health Canada, Ottawa, Canada, and GENE- TRAK Systems Industrial Diagnostics, Framingham, Mass., reported in the October 1995 issue of the Journal of Food Protection that the probe effectively identified 110 strains of Salmonella spp. and yielded no false-positive reactions in the examination of 61 pure cultures of nonsalmonellae.

Of the 53 contaminated raw meats and other high-moisture samples examined, 47 (88.7%) were detected using the GENE- TRAK analytical protocol, according to their report.

Ancillary work showed that the choice of selective enrichment conditions played a determinant role in the performance of the probe system, and attempts to shorten the method time through probing of 6- and 24-hour selective enrichment cultures met with limited success, the researchers stated.

The researchers are now investigating the feasibility of enhancing the performance of the system "to a level of unfailing sensitivity and specificity" by probing an equal mixture of post-enrichment (6 hour) cultures arising from homologous tetrathionate brilliant green and selenite cystine 24-hour cultures, according to the report.

Charm Farm Test for Antimicrobial Residues in Meat Evaluated

In the same issue, Gary Korsrud and colleagues, Health of Animals Laboratory, Agriculture and Agri-Food Canada, Saskatoon, Canada, reported on their laboratory evaluation of a commercial test kit for detecting antimicrobial residues in tissues, the Charm Farm Test manufactured by Charm Sciences Inc. in Malden, Mass.

The researchers found that the Charm Farm Test is relatively easy to perform, does not involve expensive equipment, and does not require significant technical expertise to obtain valid results, according to their report.

Incubation time is shorter than two other tests, allowing same-day results, and the costs are similar, the researchers reported. It is, however, subject to some false-positive and false-negative results, and the sensitivity for some drugs is above the minimum residue levels.

To further assess its potential as a replacement for the existing tests conducted in packing plants, parallel testing needs to be conducted on fresh tissues in a plant environment, the researchers concluded.

Faster Detection of Salmonella in Liquid Eggs Using IMS- ELISA

In the September 1995 issue of the same journal, Peter Holt and colleagues, of the Department of Agriculture's Southeast Poultry Research Laboratory in Athens, Ga., reported they have developed an assay that requires less time than conventional direct plating to detect Salmonella **enteritidis** in contaminated egg pools.

The immunomagnetic separation (IMS)-based assay used the Dynabeads Anti-Salmonella, a magnetic bead with mouse anti- Salmonella **antibodies** affixed to the surface, to bind the SE in the egg pools. The bound SE was concentrated by a magnet and was detected via an enzyme-linked immunosorbent assay (ELISA)(IMS-ELISA) employing a monoclonal anti-SE **flagella** proteins **antibody** . Following the ELISA, the beads were plated

onto differential media (IMS-direct), according to the report.

The IMS-ELISA provides an SE detection rate comparable to direct plating, but achieves the results 24 hours sooner, the researchers stated.

Non-Antibiotic Culture Medium Developed For Bacillus cereus

Researchers in Brazil have developed an alternative culture medium for isolation and quantification of Bacillus cereus in foods that is easier to make than the traditional Mossel medium and does not require the use of antibiotics.

Fernando Jose Meira de Vasconcellos and Leon Rabinovitch, Instituto Oswaldo Cruz, Rio de Janeiro, Brazil, reported in the March 1995 issue of the same journal that they designed the new formula to keep inhibition of B. cereus to a minimum while ensuring adequate suppression of contaminants without the use of antibiotics such as polymyxin B.

PUBLISHER NAME: Food Chemical News, Inc.
EVENT NAMES: *310 (Science & research)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *0101100 (Food); 0110010 (Feed Grains)
INDUSTRY NAMES: BUSN (Any type of business); CHEM (Chemicals, Plastics and Rubber); FOOD (Food, Beverages and Nutrition)
NAICS CODES: 111 (Crop Production); 1111 (Oilseed and Grain Farming)

6/9/102 (Item 2 from file: 65)
DIALOG(R)File 65:Inside Conferences

01397939 INSIDE CONFERENCE ITEM ID: CN013869460
Humoral immune **response of chickens to Salmonella** enteritidis **(SE) outer membrane protein (OMP) and** flagellar **antigens**
Baker, S. E.; Dunn, P.; Castro, A.; Maddox, C. W.
CONFERENCE: American Association of Veterinary Laboratory Diagnosticians-Annual meeting; 38th
ANNUAL MEETING- AMERICAN ASSOCIATION OF VETERINARY LABORATORY DIAGNOSTICIANS, 1995; 38th P: 19
AAVLD, 1995
LANGUAGE: English DOCUMENT TYPE: Conference Abstracts and programme
CONFERENCE SPONSOR: American Association of Veterinary Laboratory Diagnosticians
CONFERENCE LOCATION: Sparks, NV
CONFERENCE DATE: Oct 1995 (19951) (19951)

BRITISH LIBRARY ITEM LOCATION: 1087.442000
DESCRIPTORS: veterinary laboratory diagnosticians; AAVLD

? t s6/3,kwic/65 69 70 71 72 80 85 100
>>>KWIC option is not available in file(s): 399

6/3,KWIC/65 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00413195
RECOMBINANT SEF14 FIMBRIAL PROTEIN FROM SALMONELLA
PROTEINE FIMBRIEE SEF14 DE RECOMBINAISON, OBTENUE A PARTIR DE SALMONELLA
Patent Applicant/Assignee:
REGENTS OF THE UNIVERSITY OF MINNESOTA,
RAJASHEKARA Gireesh,
NAGARAJA Kakambi V,

KAPUR Vivek,
Inventor(s):
RAJASHEKARA Gireesh,
NAGARAJA Kakambi V,
KAPUR Vivek,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9803656 A1 19980129
Application: WO 97US12639 19970718 (PCT/WO US9712639)
Priority Application: US 9622191 19960719
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AL AM AT AT AU AZ BA BB BG BR BY CA CH CN CU CZ CZ DE DE DK DK EE EE ES
FI FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK
MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SK SL TJ TM TR TT UA UG US UZ
VN YU ZW GH KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH DE
DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE
SN TD TG
Publication Language: English
Fulltext Word Count: 6323

Fulltext Availability:
Detailed Description

Detailed Description
... when
conventional bacterial cultures are used.

other diagnostic methods rely on the detection of serum **antibodies** specific to SE. Although several serological methods such as micro-agglutination, serum plate agglutination, latex...is a photograph showing a Western blot of the rSef14 fragment probed with anti-Sef14 **antibody** (lane 1) and anti-tag (T7) **antibody** (lane 2).

Figure 3 is a photograph showing results of a rSef14-latex agglutination assay for SE infection in chickens exposed to S. **enteritidis** (A), S. pullorum (B), and serum-free antigen control (C).

Figure 4 is a photograph...

...of a
rSef14-latex agglutination assay for SE infection in S chickens exposed to S. **enteritidis** (A), S. gallinarum (2), S. pullorum (C), S. typhimurium (D), C. arizonae (E), E.

coli...

...Figure 5 is a graph showing the percentage of chickens testing positive for anti-SE **antibodies** during 4 weeks post-innoculation. The five bars at each week represent innoculation with 1...

...11 08 f10 10, and control
(no cells).

Figure 6 is a graph showing the **antibody** titres of chicken sera samples testing positive for anti-SE

antibodies .

Figure 7 is a graph showing the **antibody** titres of chicken egg yolk samples testing positive for anti-SE **antibodies** .

Detailed Description of the invention
The present invention is directed to a method for diagnosing Salmonella **enteritidis** infection or evidence of infection in an animal, particularly poultry, using a recombinant truncated **fimbrial** antigen.

"'Infection" means active colonization of the animal by SE organisms. "Evidence of infection" means...

...to alert against new infection or to trace the source of infection in a flock.

Fimbrial Proteins
Fimbriae are proteinaceous filamentous surface structures composed of protein subunits called fimbrin. These proteinaceous structures are...

...mucosal surfaces. They are present in most enteric bacteria capable of invading host cells.

Salmonella **enteritidis** has four distinct **fimbriae** : Sef14, Sef17, Sef18 and Sef21 which are encoded by sefA, agfA, sefD and fimA genes, respectively. Sef14 is unique with only limited distribution in the genus. In contrast, all other **fimbrial** proteins are widely distributed in the genus. Thus, they have limited use as diagnostic reagents...

...a host using a plasmid or phage as a vector. Typically, the expression of Sef14 **fimbriae** by cultured Salmonella **enteritidis** is highly dependent on the growth medium composition (Thorns et al, International Journal of Food...

...it is useful in various immunological methods. For example, the inventive antigen is useful in **antibody** binding immunoassays such as assays to detect the presence of **antibodies** against SE in a sample. Suitable binding assays include ELISA, wherein the recombinant Sef14 antigen is bound to a surface and exposed to **antibodies** against SE.

To detect the presence of bound anti-SE **antibodies** , a marker such as an enzyme-linked secondary **antibody** is then added.

An agglutination assay using truncated Sef14 antigen-coated latex beads is preferred. In the agglutination reaction, antigen-coated latex beads form detectable clusters when exposed to **antibodies** against SE.

This preferred assay is described more fully in Example 4,

below.

Diacrnostic Assaya...

6/3,KWIC/69 (Item 5 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

00277421 **Image available**

METHODS AND COMPOSITIONS FOR DETECTION OF SALMONELLA
PROCEDES ET COMPOSITIONS DE DETECTION DE LA SALMONELLE

Patent Applicant/Assignee:
UNIVERSITY OF VICTORIA INNOVATION AND DEVELOPMEN T CORPORATION,
KING Joshua,
Inventor(s):
DORAN James L,
KAY William W,
COLLINSON S Karen,
CLOUTHIER Sharon C,

Patent and Priority Information (Country, Number, Date):
Patent: WO 9425597 A2 19941110
Application: WO 94IB205 19940426 (PCT/WO IB9400205)
Priority Application: US 9354452 19930426
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AU BB BG BR BY CA CN CZ FI GE HU JP KG KP KR KZ LK LV MD MG MN MW NO NZ
PL RO RU SD SI SK TJ TT UA UZ VN AT BE CH DE DK ES FR GB GR IE IT LU MC
NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 28396

Fulltext Availability:
Detailed Description

Detailed Description
... blotting detection of Type I fimbrin protein conducted according to Mfiller et al. using polyclonal **antisera** to native S.EF21 fimbriae were qualitatively compared to FimA production by S. ententidis strain...

...whole cells was conducted by standard methods as described in Materials and Methods using polyclonal **antisera** to native SEF21 **fimbriae** . The results are presented as a percentage of the results obtained using cells of S...

...and subjected to Western blot analysis as described by Collinson et al. (8).

Anti-AgfA **immune** serum served as the primary **antibody** . Visualization of proteins that were immunologically cross-reactive with AgfA was accomplished by using goat, anti-rabbit, **immunoglobulin** G-alkaline phosphatase conjugates (Caltag Laboratories, ...L E 1 5
Subcloning and Sequencing of the fimA Gene
To isolate the S **enteritidis** fimA gene, a genomic DNA library was prepared in a BamI-R-digested, dephosphorlyated cosmid...

6/3,KWIC/70 (Item 6 from file: 349)

00245945

METHOD OF TESTING FOR SALMONELLA

METHODE POUR L'IDENTIFICATION DE SALMONELLES

Patent Applicant/Assignee:
THE MINISTER OF AGRICULTURE FISHERIES AND FOOD IN HER BRITANNIC MAJESTY'S GOVERNMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND,

WOODWARD Martin John,
THORNS Christopher John,
Inventor(s):
WOODWARD Martin John,
THORNS Christopher John,

Patent and Priority Information (Country, Number, Date):
Patent: WO 9320231 A1 19931014
Application: WO 93GB647 19930329 (PCT/WO GB9300647)
Priority Application: GB 927069 19920331
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AT AU BB BG BR CA CH CZ DE DK ES FI GB HU JP KP KR LK LU MG MN MW NL NO NZ PL PT RO RU SD SE SK UA US AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 8935

Fulltext Availability:
Detailed Description
Claims

Detailed Description
... target sequence and affinity may be used for the determinative tests4 Of particular use are **antibodies** raised to the SEFA antigen or an epitope of that, in so far as these...

...S.L.

ty2hi, thus providing a ready check as to identity of the organism.

These **antibodies** are subject of PCT/GB 91/01960 as described previously and hybridoma cells expressing one...

...OJQ, under accession number 90101101 on 11th October 1990. In all cases of use of **antibodies** as reagents in these tests it will be possible to enhance visualisation of the **antibody** -antigen binding phenomena by labelling them with coloured latex particles as is known in the...

...and Michaelson (1984) Lab Management 22 27-40). Alternativley use may be made of secondary **antibodies** as is also known in the art whereby the secondary **antibody** is targeted at the **antibody** reagent and is labelled, eg. with gold, such that when excess unbound **antibody** is washed away, eg. so as to be removed from cells or **fimbria** in the sample, it is possible to observe the gold or other label clustered around the cells or **fimbria** thus indicating

antibody binding on these.

As further explained in PCT/GB 91/01690, it is found that factor in the in vitro production
of SEFA epitopic sites on the Salm6nella **fimbria** of the SEFA expressing strains. Peptone water and Enriched E broth (see Francis et al...

...agars. Suitable media may be selected for
the ability to support SEFA expression by S. **enteritidis** as determined by antigen- **antibody** binding assay using one of the monoclonal **antibodies** , eg, that deposited as referred to above or other SEFA derived specific **antibodies** ,
The present invention further provides kits for performing the methods of this invention; kits for...

...SEFA
expressing organisms or their SEFA associated components (ie, SEFA or an epitopic part thereof, **antibodies** to SEFA or epitopic parts thereof, polynucleotides encoding for SEFA or epitopic parts thereof) being...does not seem to adversely affect the test.

Procedures for raising both polyclonal and monoclonal **antibodies** to salmonella surface antigens are well known. Thus, for example, S.

enteritidia may be grown...be observed
by the presence of the bound label on the well, Other antibody/second **antibody** combinations will occur to the man skilled in the art (eg murine bovine or chicken **antibodies** /anti-murine anti-bovine or anti-chicken second **antibodies**),
In a yet further way the **antibody** may be immobilised on a substrate and the immobilised **antibody** may then be exposed to a solution containing the antigen in the form of for example whole micro-organisms, the isolated **fimbriae** or the antigenic protein (SEFA), together with an agent capable of competing with the antigen for binding sites on the **antibody** . The quantity of the agent binding to the immobilised **antibody** may then be determined, eg: by use of known, labelling techniques. For ;xample the competing agent may be a labelled anti-mouse IgG if the **antibody** is a mouse monoclonal, or may be labelled **fimbrial** antigen. The labels used in the above methods may be entirely conventional, and ways of labelling **antibodies** are well known.

The test kits may contain further reagents and other items for performance of the two or more determinations necessary (ie. the SEFA determination and the serotype **enteritidis** /dublin/typhi determination), For example as well the **antibodies** and the SEFA expression medium, visualising agents and standard result cards may be included. Depending upon the way in which the test is to be applied the **antibody** may be provided in the form of a solution, eg, for immunoagglutination or if the antigen is to be immobilised, or the **antibody** may be provided in the aforementioned immobilised form. The test kit may optionally also contain a further **antibodies** for further cross-checking salmonella serotype, instructions and appropriate vessels for ...as of serotype S. typhi, or as one of the SEFA expressing strains, comprise monoclonal **antibody** directed at SEFA, a polyclonal **antibody** directed-to S. dublin **flagella** p antigen but not

immunoreactive with **enteritidis** or typhi, a polyclonal **antibody** directed at G component of S. dublin and S. **enteritidis** **flagella** but not immunoreactive with S. typhi, reader cards and preferred growth medium optionally with any...

...test.

Coatine of latex: To prepare a batch of latex coated with any of the **antibodies** . Materials: Glycine bufferred saline (GBS as above), Bovine serum albumen (fatty acids free) (Code A-6003, Sigma Chemicals), coloured latex (colour chosen to identify a particular **antibody** on its surface), 0.8microns, 10% suspension (Code K080, Estapor. Rhone-Poulene), **antibody** containing fluid, Glass container of the suitable size - Pressmatic dispenser (Bibby) - Dropper bottles Labels - Rocking device
Method: volumes of latex, **antibody** and GBS appropriate for that batch size are mixed in a glass container and incubated...

...old Balb/c mice.
Positive control SEFA, p protein (re dublin) or G component (re **enteritidis** and dublin) is/are preferably included in the kit or a sample of a salmonella...

...and S. typhi, In this protocol S. typhi does not react with any of the **antibodies** , although other protocols using positive identification will occur to those skilled in the art. The...

...control and reader cards are used to determine degree of response.

Note; other commercially available **antisera** are available which are 4 capable of differential binding with these three significant SEFA expressing...

Claim
... A test kit as claimed in claim 17 further comprising one or more of:
(i) **antibodies** to SEFA or an epitopic part thereof or cells capable of producing those **antibodies** ;
(ii) SEFA or an epitopic part thereof in the form of cells, **fimbria** isolated SEFA or said part or any of these immobilised onto a surface;
(iii) secondary **antibodies** capable of specific binding to the **antibodies** to SEFA or to **antibodies** to the epitopic part thereof and
(vi) medium or media capable of supporting or switching off expression of SEFA by S. **enteritidis** and/or S. dublin or essential components ...such medium or media.

19 A test kit as claimed in claim 18 wherein the **antibodies** are immobilised on a solid carrier.

20 A test kit as claimed in claim 18 or 19 further comprising an **antibody** labelling agent,

21 A test kit as claimed in Claim 20 wherein the labelling agent...

...A test kit as claimed in any one of Claims 18 to 21 wherein the **antibodies** are in labelled form.

23 A test kit as claimed in Claim 22 wherein the...

6/3,KWIC/71 (Item 7 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00208995
SALMONELLA POLYNUCLEOTIDE SEQUENCE
SEQUENCE DE POLYNUCLEOTIDES DE LA SALMONELLE
Patent Applicant/Assignee:
THE MINISTER FOR AGRICULTURE FISHERIES AND FOOD IN HER BRITANNIC MAJESTY'S GOVERNMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND,
WOODWARD Martin John,
Inventor(s):
WOODWARD Martin John,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9206198 A1 19920416
Application: WO 91GB1691 19911001 (PCT/WO GB9101691)
Priority Application: GB 9021338 19901001; GB 9022570 19901017
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AT AU BE BG BR CA CH DE DK ES FI FR GB GR HU IT JP KR LU NL NO PL RO SE SU US
Publication Language: English
Fulltext Word Count: 8541
Fulltext Availability:
Detailed Description

Detailed Description
... and transformed
cells containing said polynucleotide sequences,
Organisms of the genus Salmonella, in particular S, **enteritidis** , S.

dublin and S. typh:,murium are responsible for infective food poisoning caused by their...

...monoclonal antibodies ("MABs"), to specific antigens are raised and which by exploitation of the antigen - **antibody** specific binding reaction the presence of the antigen can be detected. Such tests are fast and very specific.

It is known that Salmonella organisms have **fimbria** like structures on their surface (Duguid; J. P and R. R. Gillies (1958) J. Pathol...

...Gerlach (1987) J. Bacterial. !EQ.:9 Qq) suggests that there are antigenically distinct types of **fimbriae** , ie. possessing specific epitopes on the **fimbrial** antigens. The possibility of immunogenic tests for Salmonella, at least S. **enteritidis** , based upon these **fimbrial** antigens has been suggested (MAFF, Central Veterinary Laboratory "Animal Health" (1989):33). Methods of raising...

...surface of micro-organisms such as Salmonella are generally known.

Unfortunately known methods for raising **antibodies** to Salmonella surface antigens only go part way toward providing an immunological

test for Salmonella...

...then applying the test.

A problem occurs in that although Salmonella micro-organisms produce their **fimbrial** antigen when they grow in vivo, eg. in the gut, in animal tissues or fluids, in food products and in some natural environments, many of the **fimbrial** antigens are not produced when they are grown in vitro,
The present inventors have determined the polynucleotide sequence responsible for producing a characteristic **fimbrial** antigen, Salmonella **enteritidis** **fimbrial** antigen (SEFA). SEFA has an amino acid sequence forming an epitope on the **fimbria** 'in vivo' which is specifically found encoded by the DNA of the species S. **enteritidis** and some strains of the species S. dublin and S. Moscow but which is apparently...

...be expected that allelic variation will occur in some organisms.

AMINO ACID SEQUENCE OF SALMONELLA **ENTERITIDIS** **FIMBRIAL** ANTIGEN
M L I V D F W R F C N M R K...VIII or IX
have been inserted as these will be readily provided from cultured S.

enteritidis or S. dublin by use of restriction endonucleases and encode for the entire SEFA amino acid sequence. In this respect use of **antibodies** targeted for SEFA allows facile recognition of transformed organisms which is particularly useful for selecting expressing organisms from a background population. Such **antibodies** are the subject of copending MAFF patent application (PCT GB 91 ----our reference P0958) of...

...ligated into a plasmid such as
PUC18. Alternatively total genomic DNA is extracted from S.

enteritidis or a strain of S. dublin possessing said **fimbrial** antigen, as determined using the monoclonal **antibodies** and techniques disclosed in the applicants copending application referred to above, and then partially digested...be
made from the small quantities which may be available by isolation from the S, **enteritidis** or 5,
dublin thus increasing the amount of
sequence available to be detected. The mere...

...of the invention for confirming presence of
transformants.

Example A. Preparation and cloning of S. **enteritidis** **fimbrial** antizen genes,
Step Al. Total genomic DNA was extracted from S. **enteritidis** using the method described in J B Goldberg & D E Ohman, (1984) J Bact 15...

...compatible cohesive ends with SauIIIA, and was dephosphorylated with calf intestinal phosphatase.

Step AL S. **enteritidis** DNA was ligated with vector PUC18 using T4 DNA ligase supplied by Bethesda Research Laboratories...
...by replica plating for Western Blotting. Standard Western Blotting procedures using the S. enterit-Irlis **fimbrial** antigen

specific monoclonal **antibody** MAB 69/25, dc"ived by standard techniques from hybridoma cells deposited under Accession No...thus containing the aforementioned sequences (VI), (VII) and (IX).

Step A7. The recombinant plasmids from **fimbrial** antigen positive transformants were extracted and used in confirmatory tests to prove the insert encoded...

6/3,KWIC/72 (Item 8 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00208994
METHOD OF TESTING FOR SALMONELLA
PROCEDE DE DEPISTAGE DE LA SALMONELLE
Patent Applicant/Assignee:
THE MINISTER FOR AGRICULTURE FISHERIES AND FOOD IN HER BRITANNIC MAJESTY'S GOVERNMENT OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND,
THORNS Christopher John,
Inventor(s):
THORNS Christopher John,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9206197 A1 19920416
Application: WO 91GB1690 19911001 (PCT/WO GB9101690)
Priority Application: GB 9021290 19901001; GB 9022570 19901017; GB 916546 19910327
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AT AU BE BG BR CA CH DE DK ES FI FR GB GR HU IT JP KR LU NL NO PL RO SE SU US
Publication Language: English
Fulltext Word Count: 12645

Fulltext Availability:
Detailed Description
Claims

English Abstract
A method of testing for the presence of Salmonella serotypes S. **enteritidis** and S. dublin is provided. Novel monoclonal **antibodies** are used to detect the presence of an epitope specific for these serotypes in cultures which have been grown on selected media which enhance the expression of said epitope in **fimbrial** sites. Test kits utilising the antigen or its epitopic parts, **antibodies** and/or the media are further provided.

Detailed Description
... to antigens containing
antigenic amino acid sequences expressed specifically by these serotypes, to specific monoclonal **antibodies** for use in said method and to kits for
performing tests according to said method...certain media
to enable or cause Salmonella to produce this specific fimbrial antigen (Salmonella enteriditis **fimbrial** antigen-SEFA) during in vitro culture, whereby prior to the step of exposure to the...

...E-.own in vitro in or on such a medium such that they produce antigenic **fimbriae** having epitopic sites thereupon, allows reliable immuno-testing.

The influence of the medium appears to be particularly pronounced in the case of the said important Salmonella micro-organisms S. **enteritidis** and S. dublin. The method of the invention is therefore particularly suitable for the specific testing for the presence of S. **enteritidis** and
S. dublin by the use of antibody - antigen binding, as these two Salmonella strains produce strongly antigenic **fimbriae** under the conditions of this invention, particularly of the preferred embodiment.

The method appears to...

...culture medium is a crucial factor in the production of epitopic sites on the Salmonella **fimbria** . Media which are "defined" or at least "semi-defined" as understood in the art are...invention provides a method of testing for the presence
of microorganisms of Salmonella serotypes S. **enteritidis** or S. dublin comprising exposing an analyte suspected of containing them or their **fimbrial** antigen (SEFA as described herein) to an antibody raised to said 15 **fimbrial** antigen or to an epitopic part thereof, and then relating the
occurrence of antibody-antigen...

...provides a method of determining the
identity of a Salmonella serotype as being either S. **enteritidis** or S.

dublin comprising (a) exposing an analyte suspected of comprising at least one of said serotypes or their **fimbrial** antigen (SEFA as described herein)
to an antibody raised to said **fimbrial** antigen, or a part thereof, and 30 then relating the occurence of antibody-antigen specific...

...further provides a method of testing for the
presence of organisms of Salmonella serotypes S. **enteritidis** or S, dublin comprising (a) seeding a sample of an analyte suspected of containing them into/onto a culture medium selected for its ability to support expression of Salmonella **enteritidis** **fimbrial** antigen (SEFA); (b)
culturing said seeded culture medium and; (c) exposing a sample derived from...part of SEFA. Particularly
conveniently the expressed SEFA is identified using one of the monoclonal **antibodies** MAB 69/25 or MAB 71/3, from cells deposited as detailed above.

Particular SEFA...37'C until a sufficient number of the micro-organisms having
epitopic sites on their **fimbriae** have grown, for example typically by overnight incubation. An incubation temperature of above 22'C...

...in the identification of the serotype of pure
cultures of Salmonella organisms; ie: as S. **enteritidis** , S. dublin or other, further antibodies being usable to distinguish them further.

Procedures for raising...

...polyclonal and monoclonal antibodies to Salmonella surface antigens are well known. Thus, for example, S.

enteritidis may be grown on a medium as described above so that antigenic **fimbriae** are produced, these then may be used to immunise mice from which spleen cells are...producing hybridomas may then be cloned to produce a mouse monoclonal antibody to the Salmonella **fimbrial** antigen. MABs may be produced by the known method of intraperitoneally injecting hybridoma cells (eg...

...particularly preferred monoclonal antibody is one having a specific immuno-affinity for the specific S. **enteritidis** **fimbrial** antigen (SEFA) produced by growth on one of the aforementioned media, ie, an antigenic protein fraction having a molecular weight of around 14,300 identified in the **fimbrial** structure after such growth conditions and having a major antigenic activity, or for immunoreactive (eg...

...extends to (i) the determination of media suitable for growing salmonella possessing the required antigenic **fimbriae** and (ii) for identification of said antigenic **fimbriae** and antigens comprising the SEFA epitope itself. Thus further specific media suitable for the performance...

...the whole Salmonella micro-organisms (live or dead) or a part thereof which includes the **fimbrial** antigen with the SEFA epitopic site may be detected by the antibody. In the latter...

...known, eg mild heat shock treatment at 60'C for 30 minutes, f or detaching **fimbriae** from Salmonella micro-organisms, and isolation of the **fimbrial** antigen in this way should lead to a more specific test result. The epitopic sites...

...testing method of the preferred embodiment of the invention appear to be present on a **fimbrial** structure produced on 5 the surface of S. **enteritidis** and S. dublin grown on media of the present invention and in vivo, which is...

...of identical repeating subunits each of molecular weight between 14,ooo and 15,000. These **fimbriae** have a 'kinked' conformation such that they entangle and extend in a matted form to...art.

In another way immunoagglutination may be observed by simply adding a solution of the **antibody** to a solution or suspension of the micro -organisms or to a culture thereof or...5% NM chloronaphthol and 0.015% (w/v) hydrogen peroxide as substrate.

5. Conventional and **immune** elcct copy. This was undertaken to locate the antigen recognised by MAB 69/25. Salmonella...to 0.1micrometres from the cell surface, and was also found in detached amorphous clumps.

Flagellae and type 1 **fimbriae** were unlabelled. Two further S, **enteritidis**

strains and three S. dublin strains that reacted in the direct binding ELISA, also expressed this **fimbrial** material which was specifically labelled with the MAB, although many S. dublin organisms appeared within a population not to express this structure or epitope. **Fimbrial** antigen 5 was not detected or labelled when the same strains of S. **enteritidis** and
S. dublin were grown at 22'C. Strains of S. zallinarum, S. pullorum and...

...6. Conclusion.. The above experiments illustrate the identification of a specific antigen located on the **fimbriae** of strains of S. **enteritidis** grown on Slanetz broth, a semi-defined medium, at 37'C, and the raising of...
...a further 264 Salmonella
strains from 63 serotypes were examined. All the strains of S.

enteritidis tested, regardless of phage type, reacted with this MAB. S.

dublin (12/36 strains) and...

...Electron microscope studies confirmed that MAB 69/25 is directed against an epitope on a **fimbrial** structure expressed on the bacterial surface that
is morphologically distinct from **flagellae** and the larger
type 1 **fimbriae** . This structure was observed only on Salmonella strains that reacted in direct binding ELISAs and these strains were labelled when examined by immune EM.

This **fimbrial** structure is much smaller than the type 1 **fimbriae** commonly
found on Salmonella strains (Clegg et al above), and unlike type 3 **fimbriae** carried by Salmonellae, it lacks any haemagglutinating activity
(Clegg et al above; Abegbola, R. A...
...agglutination with the provided
10 antibodies MAB 69/25 or MAB 71/3 or other **antibodies** raised against SEFA.

Such determination would involve no undue experimentation or inventive input. Thus the...Choose the batch size (volume) of latex to be prepared (ii)
Mix volumes of latex, **antibody** and GBS appropriate for that batch size in
a glass container and incubate for 2...

...azainst S. dublin),
To prepare a batch of latex coated with rabbit polyclonal serum against **flagella** of S. dublin.

Materials: The polyclonal serum is prior absorbed with S. **enteritidis** to
remove all **antibody** crossreacting with it. Glycine buffered saline (GBS); Bovine serum albumin (fatty acids free) Code A...container; Pressmatic dispenser (Bibby); Dropper bottles; Labels; Rocking device.

Preparation Volumes, every new batch of **antibody** has to be titrated to determine optimal volumes for coating.

Red latex **Antibody** GBS Batch size Bottle No.

ml ml ml ml
1.5 0,5 6.0...

...Choose the batch size (volume) of latex to be prepared (ii)
Mix volumes of latex, **antibody** and GBS in a glass container and incubate
for 2 hours at 37'C with...of SEFA
bearing materials (eg; whole organisms). Test latex 2 is used to differentiate S. **enteritidis** and S. dublin, the latter only binding to it. The control latex aids determination of...

...Dorset egg slopes and
grown in peptone water for 18hours at 370C.

Purification of SEFA: **Fimbrial** antigens were prepared from S.

enteritidis 468/86 which has been identified as expressing large quantities of the **fimbriae** .
The organisms were grown on Sensitest agar (Oxoid, Basingstoke, United Kingdom) overnight at 37'C. Bacteria were sedimented and suspended in phosphate buffered saline (PBS) pH 6 The **fimbriae** were then removed from the surface of the bacteria by heating the suspension at 60...

...determined by sodium
dodecyl-sulphate-polyacrylamide gel-electrophoresis (SDS-PAGE) using 12.5% gels.

Rabbit **antisera** . New Zealand White rabbits were injected subcutaneously into two separate sites with 50micrograms of purified...

...later and blood was collected 10 days after the final inoculation. The specificity of the **antisera** was checked by enzyme-linked immunosorbent assay (ELISA) and **immune** electron microscopy (IEM).

Production of MABs. Female BALB/c mice were injected intraperitoneally with 50micrograms...distributed evenly
throughout SEFA in all cases and was similar to the labelling of the **fimbrial** antigen with RaSEFA.

Individual MABs and RaSEFA reacted identically suggesting ...SEFA is expressed by only a few Salmonella serotypes all
within serogroup D. All S. **enteritidis** strains grown in peptone water express large quantities of SEFA. However, under the same growth...

...similar numbers of gold particles
associated with SEFA suggesting that the size of the rabbit **antibodies** and
gold particles inhibits the binding to closely oriented epitopes. The fact that the majority...

...b Epitope
Antigens 14300 molecular Affinity Cluster
wt. SEFA
Whole S. SEFA-1 IgG, + + ++ 1
enteritidis SEFA-2 IgG, + + ++ 1
strain SEFA-3 IgG, + + ++ 1

1246/89 cells
Crude and sEFA...

...MAB 69/25
SEFA-9 is MAB 71/3
ELECTRON MICROSCOPY FIGURES
FIG. 1. S. **enteritidis** negatively stained with PTA showing three distinct
surface organelles. A; fine **fimbrial** material radiating from cell surface and a detached **flagellum** (arrow). Bar, 200nm. B; **fimbrial** material (fa) forming matted appearance, and type 1 **fimbriae** (arrows).

Bar 200nm.

FIG. 2. S. **enteritidis** organisms probed with Mab 69/25 and labelled with immunogold. A; specific labelling of matted **fimbrial** antigen (fa) uniformly covering the cell surface. Bar, 600 nm. B; gold particles attached to matted **fimbrial** antigen (fa), but **flagella** and type 1 **fimbriae** (arrows) are unlabelled. Bar, 400nm.

FIG. 3. Two S. dublin organisms from culture probed with...immunogold. Cell 'a' is heavily labelled with gold
particles, Cell lb' does not exhibit surface **fimbrial** material and is unlabelled. **Flagella** fragments are unlabelled. Bar, 600nm.

Claim
1 A method of testing for the presence of microorganisms of Salmonella serotypes S. **enteritidis** or S. dublin comprising exposing an analyte suspected of containing them or their **fimbrial** antigen (SEFA as described herein) to an antibody raised to said **fimbrial** antigen or an epitopic part
thereof, and then relating the occurrence of antibody-antigen specific...

...method of testing for the presence of antibodies to SEFA (as described herein) comprising exposing **fimbrial** antigen (SEFA as described herein) or an epitopic part thereof to an analyte suspected of ...

...antibodies.

3 A method for the detection of infection by microorganisms of the serotypes S. **enteritidis** or S. dublin comprising use of a method as claimed in claim 2 to test...

...4 A method of determining the identity of a Salmonella serotype as being either S. **enteritidis** or S. dublin comprising:
(a) exposing an analyte suspected of comprising at least one of said serotypes or their **fimbrial** antigen (SEFA as described herein) to an antibody raised to said **fimbrial** antigen, or an epitopic part thereof, and
then relating the occurrence of antibody-antigen specific...

...serotype.

6 A method of testing for the presence of organisms of Salmonella serotypes S. **enteritidis** or S. dublin comprising:
(a) seeding a sample of an analyte suspected of containing them into/onto a culture medium selected for its ability to support expression of

Salmonella **enteritidis** **fimbrial** antigen (SEFA);
(b) culturing said seeded material on said culture medium and;
(c) exposing a sample derived from the culture derived from step (b) to an
antibody raised to said **fimbrial** antigen, or a part thereof, and then relating the occurence of antibody-antigen specific binding...

...screening candidate culture media for the ability to support the expression of SEFA by S. **enteritidis** or a SEFA producing strain of -5, dublin, wherein the screening comprises identifying antibody-antigen...

...an antibody raised to SEFA or an epitopic part thereof
and the salmonella cells or **fimbriae** cultured on said media,
8 A method as claimed in Claim 7 wherein the **antibody** is one of the monoclonal **antibodies** MAB 69/25 or MAB 71/3, (deposited as detailed herein).

9 A method as claimed in Claim 7 wherein the **antibody** is one that has been raised to an antigen which comprises an epitopic part of...

...any one of Claims 3 to 12 comprising:
(a) cells which are capable of producing **antibodies** which are capable of
specifically binding to SEFA or an epitopic part thereof, and/or (b) said **antibodies** themselves.

16 A test kit as claimed in Claim 15 comprising
(a) hybridoma cells which are capable of producing monoclonal **antibodies**

which are capable of specifically binding to SEFA or an epitopic part thereof, and/or (b) said monoclonal **antibodies** themselves.

17 A test kit as claimed in Claim 16 wherein the hybridoma cells and/or **antibodies** are those as claimed in Claim 13 or 14 respectively.
18 A test kit as claimed in Claim 15 or 16 wherein the **antibodies** are immobilised on a solid carrier.

19 A test kit as claimed in any one of Claims 15 to 18 further comprising an **antibody** labelling agent.

21 A test kit as claimed in Claim 19 wherein the labelling agent...

...A test kit as claimed in any one of Claims 15 to 18 wherein the **antibodies** are in labelled form.

21 A test kit as claimed in any one of Claims...

...for preparation of a medium capable of causing
or supporting expression of SEPA by S, **enteritidis** or S,dublin.

22 A test kit as claimed in Claim 21 wherein the components...test kit for use in a method as claimed in Claim 2 comprising
Salmonella enteriditis **fimbrial** antigen (SEFA) or an epitopic part thereof.

25 A test kit as claimed in Claim 24 wherein the SEFA or epitopic part thereof is derived from S. **enteritidis** or S. dublin microorganisms.

26 A test kit as claimed in Claim 24 where in the SEFA is in the form of detached **fimbriae** .

27 A test kit as claimed in any one of Claims 24 to 26 wherein...

...Claim 27 wherein the substrate is a microtitre plate.

29 An isolated polypeptide comprising Salmonella **enteritidis fimbrial** antigen (SEFA as defined herein) or an epitopic part thereof,

30 An isolated polypeptide as claimed in Claim 26 comprising Salmonella eneteritidis **fimbrial** antigen (as defined herein).

6/3,KWIC/80 (Item 1 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)

129314717 CA: 129(24)314717p JOURNAL
Synthesis of flagellin fragments and studies of their interactions with antibodies. Part I
AUTHOR(S): Klugmann, K.; Kunikowska, D.; Glosnicka, R.; Mackiewicz, Z.
LOCATION: Faculty Chemistry, Univ. Gdansk, 80-952, Gdansk, Pol.
JOURNAL: Pol. J. Chem. DATE: 1998 VOLUME: 72 NUMBER: 9 PAGES: 2093-2097 CODEN: PJCHDQ ISSN: 0137-5083 LANGUAGE: English PUBLISHER: Polish Chemical Society

6/3,KWIC/85 (Item 4 from file: 654)
DIALOG(R)File 654:US Pat.Full.

3715594
Derwent Accession: 1992-150883
Utility
EXPIRED
C/ **Method of testing for the presence of Salmonella serotypes expressing Salmonella enteritidis fimbrial antigen (SEFA) and reagents therefore** ; USING MONOC LONAL AN TIBODIES
Inventor: Thorns, Christopher J., Woking, GB England
Assignee: The Minister of Agriculture, Fisheries and Food in Her Britannic Majesty's Government of the United Kingdom of Great Britian and Northern Ireland(07), London, GB
United Kingdom Agriculture Fisheries and Food Minister of GB (Code: 19430)
Examiner: Scheiner, Toni R. (Art Unit: 182)
Assistant Examiner: Duffy, Patricia A.
Law Firm: Nixon & Vanderhye

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 5510241	A	19960423	US 95449922	19950525
Continuation	Abandoned			US 9330208	19930326
Priority				GB 9021290	19901001
				GB 9022570	19901017
				GB 916546	19910327

Fulltext Word Count: 11469

Abstract:
A method of testing for the presence of Salmonella serotypes S. **enteritidis** and S. dublin is provided. Novel monoclonal **antibodies** are used to detect the presence of an epitope specific for these serotypes in cultures which have been grown on selected media which enhance the expression of said epitope in **fimbrial** sites. Test kits utilizing the antigen or its epitopic parts, **antibodies** and/or the media are further provided.

Summary of the Invention:
...organisms may be detected. In recent years immunological tests have been devised in which specific **antibodies** , particularly monoclonal **antibodies** ("MABs"), to specific antigens are raised and which, by exploiting the antigen- **antibody** specific binding reaction, the presence of the antigen can be detected. Such tests are fastIt is known that Salmonella organisms have **fimbria** -like structures on their surface (Duguid; J. P.; and R. R. Gillies. (1958) J. Pathol...

...1987) J. Bacteriol. 169:934-938), suggests that there are antigenically distinct types of such **fimbriae** , ie possessing specific epitopes on the **fimbrial** antigens. The possibility of immunogenic tests for Salmonella, at least S. **enteritidis** , based upon these **fimbrial** antigens has been suggested (MAFF, Central veterinary Laboratory "Animal Health" (1989):33). Methods of raising...

...Unfortunately known methods of raising **antibodies** to Salmonella surface antigens only go part way toward providing an immunological test for Salmonella...

...A problem occurs in that it is found that although Salmonella micro-organisms produce their **fimbrial** antigen when they grow in vivo, e.g. ...animal tissues or fluids, in food products and in some natural environments, many of the **fimbrial** antigens are not produced when they are grown in vitro on most culture media...

...with the object of identifying the conditions necessary to induce the Salmonella micro-organisms S. **enteritidis** and S. dublin to produce a specific **fimbrial** antigen during in vitro culture so that immunological tests may be applied. This has provided...

...method for testing for the presence of micro-organisms of the species Salmonella, serotypes S. **enteritidis** and S, dublin, using the specific **fimbrial** antigen or an epitopic part thereof to bind them. Thus suspect biological fluids may be tested for such **antibodies** with the aim of identifying cases of S. **enteritidis** or S. dublin infection. The particular specific antigen identified by the present inventors has been ...

...of the ability of certain media to enable or cause Salmonella to produce this specific **fimbrial** antigen (Salmonella enteriditis **fimbrial** antigen-SEFA) during in vitro culture, whereby prior to the step of exposure to the **antibody** the micro-organisms are grown in vitro in or on such a medium such that they produce antigenic **fimbriae** having epitopic sites thereupon, allows reliable immuno-testing...to be

particularly pronounced in the case of the said important Salmonella micro-organisms S. **enteritidis** and S. dublin. The method of the invention is therefore particularly suitable for the specific testing for the presence of S. **enteritidis** and S. dublin by the use of **antibody** -antigen binding, as these two Salmonella strains produce strongly antigenic **fimbriae** under the conditions of this invention, particularly of the preferred embodiment. The method appears to...

...culture medium is a crucial factor in the production of epitopic sites on the Salmonella **fimbria** . Media which are "defined" or at least "semi-defined" as understood in the art are...invention provides a method of testing for the presence of microorganisms of Salmonella serotypes S. **enteritidis** or S. dublin comprising exposing an analyte suspected of containing them or their **fimbrial** antigen (SEFA as described herein) to an antibody raised to said **fimbrial** antigen or to an epitopic part thereof, and then relating the occurrence of antibody-antigen...provides a method of determining the identity of a Salmonella serotype as being either S. **enteritidis** or S. dublin comprising (a) exposing an analyte suspected of comprising at least one of said serotypes or their **fimbrial** antigen (SEFA as described herein) to an antibody raised to said **fimbrial** antigen, or a part thereof, and then relating the occurence of antibody-antigen specific binding...

...sample of said analyte suspected of comprising at least one of said serotypes to an **antibody** raised to specifically bind to the second one of said serotypes but not to the first and relating the occurence of **antibody** -antigen specific binding to the presence of said second serotype...

...further provides a method of testing for the presence of organisms of Salmonella serotypes S. **enteritidis** or S. dublin comprising (a) seeding a sample ...them into/onto a culture medium selected for its ability to support expression of Salmonella **enteritidis** **fimbrial** antigen (SEFA); (b) culturing said seeded culture medium and; (c) exposing a sample derived from the culture derived from step (b) to an **antibody** raised to said **fimbrial** antigen, or an epitopic part thereof, and then relating the occurrence of **antibody** -antigen specific binding to the presence of said serotypes...

...may be identified by comparison with previously isolated SEFA or by its ability to produce **antibody** -antigen specific binding with **antibodies** raised to SEFA or an epitopic part of SEFA. Particularly conveniently the expressed SEFA is identified using one of the monoclonal **antibodies** MAB 69/25 or MAB 71/3, from cells deposited as detailed above...s)] C. until a sufficient number of the micro-organisms having epitopic sites on their **fimbriae** have grown, for example typically by overnight incubation. An incubation temperature of above 22[degree...

...in the identification of the serotype of pure cultures of Salmonella organisms; ie: as S. **enteritidis** , S. dublin or other, further antibodies being usable to distinguish them further...polyclonal and monoclonal antibodies to Salmonella surface antigens are well known. Thus, for example, S. **enteritidis** may be grown on a medium as described above so that antigenic **fimbriae** are produced, these then may be used to immunise mice from which spleen cells are...

...producing hybridomas may then be cloned to produce a mouse monoclonal antibody to the Salmonella **fimbrial** antigen. MABs may be produced by

the known method of intraperitoneally injecting hybridoma cells (e...

...particularly preferred monoclonal antibody is one having a specific immuno-affinity for the specific S. **enteritidis** **fimbrial** antigen (SEFA) produced by growth on one of the aforementioned media, ie. an antigenic protein fraction having a molecular weight of around 14,300 identified in the **fimbrial** structure after such growth conditions and having a major antigenic activity, or for immunoreactive (e...extends to (i) the determination of media suitable for growing salmonella possessing the required antigenic **fimbriae** and (ii) for identification of said antigenic **fimbriae** and antigens comprising the SEFA epitope itself. Thus further specific media suitable for the performance...
...the whole Salmonella micro-organisms (live or dead) or a part thereof which includes the **fimbrial** antigen with the SEFA epitopic site may be detected by the antibody. In the latter...

...g. mild heat shock treatment at 60[degree(s)] C. for 30 minutes, for detaching **fimbriae** from Salmonella micro-organisms, and isolation of the **fimbrial** antigen in this way should lead to a more specific test result. The epitopic sites...

...testing method of the preferred embodiment of the invention appear to be present on a **fimbrial** structure produced on the surface of S. **enteritidis** and S. dublin grown on media of the present ...of identical repeating subunits each of molecular weight between 14,000 and 15,000. These **fimbriae** have a `kinked` conformation such that they entangle and extend in a matted form to...

...second antibody may, for example, be an anti-mouse Ig G. The binding of the **antibody** to the fimbriae may then be detected using microscopy to observe the clustering of gold...

Description of the Invention:

...For **immune** electron microscopy antigen coated grids were floated on 1 drop of an optimum dilution ofFlagellae and type 1 **fimbriae** were unlabelled. Two further S. **enteritidis** strains and three S. dublin strains that reacted in the direct binding ELISA, also expressed this **fimbrial** material which was specifically labelled with the MAB, although many S. dublin organisms appeared within a population not to express this structure or epitope. **Fimbrial** antigen was not detected or labelled when the same strains of S. **enteritidis** and S. dublin were grown at 22[degree(s)] C. Strains of S. gallinarum, S...

...The above experiments illustrate the identification of a specific antigen located on the **fimbriae** of strains of S. **enteritidis** grown on Slanetz broth, a semi-defined medium, at 37[degree(s)] C., and the...

...a further 264 Salmonella strains from 63 serotypes were examined. All the strains of S. **enteritidis** tested, regardless of phage type, reacted with this MAB. S. dublin (12/36 strains) and...

...Electron microscope studies confirmed that MAB 69/25 is directed against an epitope on a **fimbrial** structure expressed on the bacterial surface that is morphologically distinct from **flagellae** and the larger type 1 **fimbriae** . This structure was observed only on Salmonella strains that reacted in direct binding ELISAs and...

...This **fimbrial** structure is much smaller than the type 1 **fimbriae** commonly found on Salmonella strains (Clegg et al above), and unlike type 3 **fimbriae** carried by Salmonellae, it lacks any haemagglutinating activity (Clegg et al above; Abegbola, R. A...

...Old. D. C., and R. A. Adegbola, 1985. J. Med. Microbiol. 20: 113-121). This **fimbrial** structure, which carries an epitope restricted to all strains of S. enteritidis and certain strains...for agglutination with the provided antibodies MAB 69/25 or MAB 71/3 or other **antibodies** raised against SEFA. Such determination would involve no undue experimentation or inventive input. Thus the...To prepare a batch of latex coated with rabbit polyclonal serum against **flagella** of S. dublin The polyclonal serum is prior absorbed with S. **enteritidis** to remove all **antibody** crossreacting with it. Glycine buffered saline (GBS); Bovine serum albumin (fatty acids free) Code A... **Fimbrial** antigens were prepared from S. **enteritidis** 468/86 which has been identified as expressing large quantities of the **fimbriae** .

...

...C. Bacteria were sedimented and suspended in phosphate buffered saline (PBS) pH 6.8. The **fimbriae** were then removed from the surface of the bacteria by heating the suspension at 60...

...Rabbit **antisera**

Exemplary or Independent Claim(s):

...method of testing a sample for the presence of microorganisms for Salmonella serotypes expressing Salmonella **enteritidis** **fimbrial** antigen (SEFA) comprising the steps of...

...a) exposing a sample suspected of containing the microorganisms, or SEFA to an **antibody** which specifically binds to the antigen specifically bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 or an **antibody** which specifically binds the epitope bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902...

...b) detecting **antibody** -antigen specific binding, wherein antigen-**antibody** specific binding is indicative of the presence of microorganisms selected from the group consisting of S. **enteritidis** , S. dublin, S. moscow and S. blegdam, and the absence of **antibody** -antigen specific binding is indicative of the absence of S. enteritidis.

Non-exemplary or Dependent Claim(s):

...of said sample suspected of containing at least one of said Salmonella serotypes to an **antibody** which specifically binds S. enteritidis but not S. dublin and detecting **antibody** -antigen specific binding wherein **antibody** antigen specific binding indicates the presence of S. enteritidis, S. moscow or S. blegdam...of said sample suspected of containing at least one of said Salmonella serotypes to an **antibody** which specifically binds S. dublin but not S. **enteritidis** and detecting **antibody** -antigen specific binding wherein **antibody** antigen specific binding indicates the presence of S. dublin, S. moscow or S. blegdam...

...of containing the organisms into or onto a culture medium supporting the expression of Salmonella **enteritidis** **fimbrial** antigen...c)

exposing a second sample obtained from the culturing step (b) to an **antibody** which specifically binds to the antigen specifically bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 or an **antibody** which specifically binds the epitope bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 and then detecting **antibody** -antigen specific binding wherein **antibody** -antigen specific binding is indicative of the presence of organisms of the group of Salmonella...Salmonella serotypes expressing SEFA, said test kit comprising SEFA, wherein the SEFA specifically binds an **antibody** which specifically binds to the antigen specifically bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 or an **antibody** which specifically binds the epitope bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902...A test kit as claimed in claim 25 wherein the SEFA is obtained form S. **enteritidis** or S. dublin microorganisms...

...in claim 25 or claim 26 wherein the SEFA is in the form of detached **fimbriae** .

6/3,KWIC/100 (Item 1 from file: 340)
DIALOG(R)File 340:CLAIMS(R)/US Patent

2711032 9609475
C/METHOD OF TESTING FOR THE PRESENCE OF SALMONELLA SEROTYPES EXPRESSING SALMONELLA ENTERITIDIS FIMBRIAL **ANTIGEN (SEFA) AND REAGENTS THEREFORE ; USING MONOCLONAL** ANTIBODIES
Inventors: Thorns Christopher J (GB)
Assignee: United Kingdom Agriculture Fisheries and Food Minister of GB
Assignee Code: 19430

	Publication Number	Kind	Date	Application Number	Date
	US 5510241	A	19960423	US 95449922	19950525
	(Cited in 003 later patents)				
Continuation of:	Abandoned			US 9330208	19930326
Priority Applic:				GB 9021290	19901001
				GB 9022570	19901017
				GB 916546	19910327

Calculated Expiration: 20130423
Legal Status: **EXPIRED**
(See File 123 for legal status details)

METHOD OF TESTING FOR THE PRESENCE OF SALMONELLA SEROTYPES EXPRESSING SALMONELLA ENTERITIDIS FIMBRIAL **ANTIGEN (SEFA) AND REAGENTS THEREFORE**
...

...**USING MONOCLONAL** ANTIBODIES

Abstract: A method of testing for the presence of Salmonella serotypes S. **enteritidis** and S. dublin is provided. Novel monoclonal **antibodies** are used to detect the presence of an epitope specific for these serotypes in cultures which have been grown on selected media which enhance the expression of said epitope in **fimbrial** sites. Test kits utilizing the

antigen or its epitopic parts, **antibodies** and/or the media are further provided.

Exemplary Claim: ...method of testing a sample for the presence of microorganisms for Salmonella serotypes expressing Salmonella **enteritidis** **fimbrial** antigen (SEFA) comprising the steps of: (a) exposing a sample suspected of containing the microorganisms, or SEFA to an **antibody** which specifically binds to the antigen specifically bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 or an **antibody** which specifically binds the epitope bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902; (b) detecting **antibody** -antigen specific binding, wherein antigen-**antibody** specific binding is indicative of the presence of microorganisms selected from the group consisting of S. **enteritidis** , S. dublin, S. moscow and S. blegdam, and the absence of **antibody** -antigen specific binding is indicative of the absence of S. **enteritidis** .

Non-exemplary Claims: ...serotypes to an antibody which specifically binds to the antigen specifically bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 or an antibody which specifically binds the epitope...

...of containing the organisms into or onto a culture medium supporting the expression of Salmonella **enteritidis** **fimbrial** antigen; (b) culturing said sample in or on the culture medium; and (c) exposing a...

...specifically bound by the monoclonal antibody secreted by ECACC 90101101 or ECACC 90121902 or an **antibody** which specifically binds the epitope bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 and then detecting **antibody** -antigen specific binding wherein **antibody** -antigen specific binding is indicative of the presence of organisms of the group of Salmonella...

...screening candidate culture media for the ability to support the expression of SEFA by S. **enteritidis** or a SEFA-expressing strain of S. dublin, wherein the screening comprises culturing a sample of S. **enteritidis** or a SEFA-expressing strain of S. dublin in or on the candidate culture medium and exposing a second sample obtained from the culturing step to an **antibody** which specifically binds to the antigen specifically bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 or an **antibody** which specifically binds the epitope bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 and then detecting **antibody** -antigen specific binding wherein **antibody** -antigen specific binding is indicative of culture medium having the ability to support the expression...

...7. A method as claimed in claim 5 wherein the **antibody** is a monoclonal **antibody** expressed by one of the hybridoma cells deposited with the European Collection of Animal Cell...Salmonella serotypes expressing SEFA, said test kit comprising SEFA, wherein the SEFA specifically binds an **antibody** which specifically binds to the antigen specifically bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 or an **antibody** which specifically binds the epitope bound by the monoclonal **antibody** secreted by ECACC 90101101 or ECACC 90121902 ...

...A test kit as claimed in claim 25 wherein the SEFA is obtained form S. **enteritidis** or S. dublin microorganisms...

...in claim 25 or claim 26 wherein the SEFA is in the form of detached **fimbriae** .

```
? logoff hold
       06jul05 09:46:57 User228206 Session D2460.5
            $0.03    0.009 DialUnits File155
     $0.03  Estimated cost File155
            $0.16    0.027 DialUnits File5
               $4.00  2 Type(s) in Format  9
            $4.00  2 Types
     $4.16  Estimated cost File5
            $0.19    0.018 DialUnits File73
               $2.94  1 Type(s) in Format  9
            $2.94  1 Types
     $3.13  Estimated cost File73
            $1.15    0.243 DialUnits File349
               $8.00  5 Type(s) in Format  3
            $8.00  5 Types
     $9.15  Estimated cost File349
            $0.07    0.027 DialUnits File10
               $2.70  2 Type(s) in Format  9
            $2.70  2 Types
     $2.77  Estimated cost File10
            $0.11    0.009 DialUnits File399
               $2.75  1 Type(s) in Format  3
            $2.75  1 Types
     $2.86  Estimated cost File399
            $0.64    0.108 DialUnits File654
               $0.70  1 Type(s) in Format  3
            $0.70  1 Types
     $1.34  Estimated cost File654
            $0.11    0.027 DialUnits File35
               $2.30  1 Type(s) in Format  9
            $2.30  1 Types
     $2.41  Estimated cost File35
            $0.06    0.027 DialUnits File203
               $2.90  2 Type(s) in Format  9
            $2.90  2 Types
     $2.96  Estimated cost File203
            $0.05    0.009 DialUnits File348
     $0.05  Estimated cost File348
            $0.04    0.009 DialUnits File444
     $0.04  Estimated cost File444
            $0.03    0.009 DialUnits File143
     $0.03  Estimated cost File143
            $0.15    0.027 DialUnits File16
               $3.45  1 Type(s) in Format  9
            $3.45  1 Types
     $3.60  Estimated cost File16
            $0.19    0.009 DialUnits File357
     $0.19  Estimated cost File357
            $0.03    0.009 DialUnits File94
     $0.03  Estimated cost File94
            $0.04    0.009 DialUnits File98
     $0.04  Estimated cost File98
            $1.26    0.072 DialUnits File340
               $1.51  1 Type(s) in Format 42
            $1.51  1 Types
     $2.77  Estimated cost File340
            $0.07    0.018 DialUnits File65
```

```
          $1.10  1 Type(s) in Format  9
        $1.10  1 Types
 $1.17  Estimated cost File65
        OneSearch, 18 files,  0.666 DialUnits FileOS
 $0.26  TELNET
$36.99  Estimated cost this search
$36.99  Estimated total session cost   0.666 DialUnits

Logoff: level 05.05.00 D  09:46:57
```

Terminal set to DLINK
? t s3/9/16 76

Set	Items	Description
S1	367	ENTERITIDIS? (100N) (FIMBRIA? OR FLAGELL? OR PILIN? OR PILI?) (100N) (IMMUNE OR ANTISER? OR ANTIBOD? OR IMMUNOGLOB?)
S2	193	RD (unique items)
S3	91	S2/1999:2005
S4	102	S2 NOT S3
S5	193	S2/PATENTS
S6	102	S2 NOT S3

? t s3/9/16 76

3/9/16 (Item 16 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

14316799 PMID: 12133620

Surface plasmon resonance (BIACORE) detection of serum antibodies against Salmonella enteritidis and Salmonella typhimurium.

Jongerius-Gortemaker Betty G M; Goverde Roos L J; van Knapen Frans; Bergwerff Aldert A

Department of the Science of Food of Animal Origin, Faculty of Veterinary Medicine, Utrecht University, Utrecht, P.O. Box 80175, Utrecht, The Netherlands.

Journal of immunological methods (Netherlands) Aug 1 **2002** , 266 (1-2) p33-44, ISSN 0022-1759 Journal Code: 1305440

Publishing Model Print

Document type: Evaluation Studies; Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

We have used a surface plasmon resonance biosensor (BIACORE 3000) to detect serum **antibodies** in chickens having current or recent infections. Three well-defined Salmonella **flagellar** recombinant DNA antigens reflecting Salmonella **enteritidis** (H:g,m **flagellin**) and Salmonella typhimurium (H:i and H:1,2 **flagellins**) expressed in Escherichia coli were each immobilized in a single flow cell of a biosensor chip. Glutathione-S-transferase was immobilized on the surface of another flow cell to monitor non-specific binding. Sera collected from chickens with no history of Salmonella infection, and from chickens infected with Salmonella serotypes infantis, pullorum, gallinarum were used to test the performance of the system. The sensitivity exhibited to a range up to 900 arbitrary response units (RU) for the most positive S. typhimurium serum at a dilution of 1/40. Sera from Salmonella infantis, Salmonella pullorum and Salmonella gallinarum infected birds gave responses less than the cut-off point, which was determined as the averaged response of sera from specific pathogen-free chickens plus three times the standard deviation. A positive response was obtained when these sera and whole blood were fortified with S. **enteritidis** and S. typhimurium positive serum. The sensitivity, specificity, precision and reproducibility obtained suggested that this approach could be used for detecting past or present infection with a range of pathogens in animals.

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Antibodies, Bacterial--blood--BL; *Salmonella Infections --diagnosis--DI; *Salmonella enteritidis--immunology--IM; *Salmonella typhimurium--immunology--IM; *Surface Plasmon Resonance--methods--MT; Animals; Antigens, Bacterial--immunology--IM; Chickens; Kinetics;

Reproducibility of Results; Sensitivity and Specificity
CAS Registry No.: 0 (Antibodies, Bacterial); 0 (Antigens, Bacterial)
Record Date Created: 20020722
Record Date Completed: 20020925

3/9/76 (Item 2 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

02003394 ORDER NO: AADAA-IMQ89484
Chicken egg yolk antibodies specific for Salmonella enteritidis and Salmonella typhimurium against experimental salmonellosis in mice
Author: Fang, Lin
Degree: M.Sc.
Year: **2003**
Corporate Source/Institution: The University of Manitoba (Canada) (0303)
Adviser: Gary Crow
Source: VOLUME 42/05 of MASTERS ABSTRACTS.
PAGE 1588. 84 PAGES
Descriptors: AGRICULTURE, ANIMAL CULTURE AND NUTRITION ; BIOLOGY, MICROBIOLOGY
Descriptor Codes: 0475; 0410
ISBN: 0-612-89484-3

The study describes procedures that were used to isolate and purify three high purity antigens [outer membrane proteins (OMP), lipopolysaccharide (LPS) and **fimbriae** (FIM)] from <italic>Salmonella typhimurium and S. **enteritidis** </italic>. Polyclonal **antibodies** were produced in chickens immunized with the three antigens. The efficacy of purified chicken egg yolk homotypic **antibodies** specific for OMP, LPS or FIM in controlling experimental salmonellosis in mice was investigated. Mice were challenged orally with 1.5 × 10<super> 9</super> colony forming units (c.f.u.) of <italic>Salmonella **enteritidis** </italic> or 1 × 10<super>9</super> c.f.u. of <italic>S. typhimurium </italic> and then orally treated with 0.2 ml of high titer anti-OMP, -LPS or -FIM yolk **antibodies** 30 min after the challenge and then once each on the following two days. In mice challenged with <italic>S. **enteritidis** </italic>, **antibody** treatment resulted in survival rates of 69.2, 46.2 and 40% using OMP, LPS or FIM specific **antibodies** , respectively, in contrast to only 15.4% in control mice ($p < 0.05$). In the <italic>S. typhimurium</italic> trial, survival rates were 76.9, 58.3 and 36.4% using OMP, LPS or FIM specific **antibodies** , respectively, in contrast to 0% in the control mice ($p < 0.05$). <italic> In vitro</italic> adhesion of <italic>S. **enteritidis** </italic> and <italic> S. typhimurium</italic> to HeLa cells was significantly ($p < 0.05$) reduced by each of the anti-OMP, -LPS, and -FIM homotypic **antibodies** . The results demonstrate that egg yolk **antibodies** specific for <italic>Salmonella</italic> OMP, LPS, or FIM will passively protect mice from experimental salmonellosis when administered orally. Of these **antibodies** , anti-OMP exhibited the highest level of protection <italic>in vivo</italic> and <italic>in vitro </italic>. Other animals and aves may also be protected against salmonellosis by the same **antibodies** , either singly or combined.
? t s3/3/48 52 53 59 62 71 85 86 88 90 91

3/3/48 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01100391 **Image available**
FLAGELLIN PEPTIDES AS ADJUVANTS FOR VACCINES
ADJUVANTS
Patent Applicant/Assignee:
BTG INTERNATIONAL LIMITED, 10 Fleet Place, Limeburner Lane, London EC2M 7SB, GB, GB (Residence), GB (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
SIRARD Jean-Claude, 54 rue Jeanne d'Arc, F-59650 Villeneuve d'Ascq, FR, FR (Residence), FR (Nationality), (Designated only for: US)
KRAEHENBUHL Jean-Pierre, Sur-la-Croix, CH-1812 Rivax, CH, CH (Residence), CH (Nationality), (Designated only for: US)
Legal Representative:
DOLAN Anthony Patrick (agent), BTG International Limited, 10 Fleet Place, Limeburner Lane, London EC4M 7SB, GB,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200422092 A2-A3 **20040318** (WO 0422092)
Application: WO 2003GB3797 20030903 (PCT/WO GB03003797)
Priority Application: US 2002407294 20020903
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 10151

3/3/52 (Item 8 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00769351 **Image available**
IMMUNO-DIAGNOSTIC TEST METHOD FOR VETERINARY DISEASE
METHODE DE TEST D'IMMUNODIAGNOSTIC POUR MALADIE VETERINAIRE
Patent Applicant/Assignee:
INSTITUTE OF MOLECULAR AGROBIOLOGY, The National University of Singapore, 1 Research Link, Singapore 117604, SG, SG (Residence), SG (Nationality), (For all designated states except: US)
INSTITUTE OF MATERIALS RESEARCH AND ENGINEERING, The National University of Singapore, S7 Level 3, Singapore 119260, SG, SG (Residence), SG (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
LI Sam Fong Yau, 5 Pine Grove, #07-03, Singapore 597591, SG, SG (Residence), SG (Nationality), (Designated only for: US)
SU Xiaodi, Block 41, #03-347, Teban Gardens Road, Singapore 600041, SG, SG (Residence), CN (Nationality), (Designated only for: US)
KWANG Jimmy, 87 Pasir Panjang Hill, #02-09 Kentview Park, Singapore 118892, SG, SG (Residence), US (Nationality), (Designated only for: US)

LOW Sharon, #01-04, 17C Nassim Park, Nassim Road, Singapore 258394, SG, SG (Residence), SG (Nationality), (Designated only for: US)
LIU Wei, Block 11, #06-110, Red Hill Close, Singapore 151011, SG, SG (Residence), CN (Nationality), (Designated only for: US)
Legal Representative:
ELLA CHEONG & G MIRANDAH, P.O. Box 0931, Raffles City, Singapore 911732, SG
Patent and Priority Information (Country, Number, Date):
Patent: WO 200102858 A1 **20010111** (WO 0102858)
Application: WO 99SG98 19991004 (PCT/WO SG9900098)
Priority Application: SG 993147 19990705
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 12259

3/3/53 (Item 9 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00766777
DETECTION OF SALMONELLA ENTERITIDIS
DETECTION DE SALMONELLA ENTERITIDIS
Patent Applicant/Assignee:
INSTITUTE OF MOLECULAR AGROBIOLOGY, The National University of Singapore, 1 Research Link, Singapore 117604, SG, SG (Residence), SG (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
KWANG Hwei-Sing, 87 Pasir Panjang Hill, #02-09 Kent New Mark, Singapore 118892, SG, SG (Residence), SG (Nationality), (Designated only for: US)
LIU Wei, Block 508, Apartment 8265, West Coast Drive, Singapore, SG, SG (Residence), SG (Nationality), (Designated only for: US)
LOW Su-Shing Sharon, 17C Nassim Road, 01-04 Nassim Park, Singapore 258394, SG, SG (Residence), SG (Nationality), (Designated only for: US)
LOH Kwang Yeng Hilda, 73 Cavenagh Road, #08-372, Singapore 229624, SG, SG (Residence), SG (Nationality), (Designated only for: US)
Legal Representative:
ELLA CHEONG & G MIRANDAH, P.O. Box 0931, Raffles City, Singapore 911732, SG
Patent and Priority Information (Country, Number, Date):
Patent: WO 200078995 A1 **20001228** (WO 0078995)
Application: WO 99SG61 19990622 (PCT/WO SG9900061)
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK

MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW SD SL SZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 8805

3/3/59 (Item 1 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)

134307678 CA: 134(22)307678b JOURNAL
Analysis of expression of flagella by Salmonella enterica serotype Typhimurium by monoclonal antibodies recognizing both phase specific and common epitopes
AUTHOR(S): Sojka, M.; Sayers, A. R.; Woodward, M. J.
LOCATION: Department of Bacterial Diseases, Veterinary Laboratory Agency (Weybridge), Addlestone, Surrey, UK, KT15 3NB
JOURNAL: Vet. Microbiol. DATE: 2001 VOLUME: 78 NUMBER: 1 PAGES: 61-77
CODEN: VMICDQ ISSN: 0378-1135 PUBLISHER ITEM IDENTIFIER: 0378-1135(00)00291-1 LANGUAGE: English PUBLISHER: Elsevier Science B.V.

3/3/62 (Item 4 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)

130351229 CA: 130(26)351229x PATENT
Detection of Salmonella typhimurium via antibodies to epitopes within the flagellin protein
INVENTOR(AUTHOR): Berry, Mark John; Metcalfe, Mark Andrew; Parry, Steven H.
LOCATION: Neth.
ASSIGNEE: Unilever N.V.; Unilever PLC
PATENT: European Pat. Appl. ; EP 915158 A2 DATE: 19990512
APPLICATION: EP 98203646 (19981028) *EP 97308838 (19971104)
PAGES: 17 pp. CODEN: EPXXDW LANGUAGE: English CLASS: C12N-015/13A; C07K-016/12B; C12N-005/20B; A61K-039/112B; G01N-033/569B; G01N-033/577B; C07K-014/255B DESIGNATED COUNTRIES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IT ; LI; LU; NL; SE; MC; PT; IE; SI; LT; LV; FI; RO

3/3/71 (Item 9 from file: 654)
DIALOG(R)File 654:US Pat.Full.

4797335 **IMAGE Available
Derwent Accession: 1998-120780
Utility
C/ **Recombinant Sef14 fimbrial protein from Salmonella** ; REACTING **A SAMPLE OBTAINED FROM POULTRY WITH A TRUNCATED SEF14 ANTIGEN TO PERMIT ANTI-SALMONELLA** ENTERITIDIS ANTIBODIES **TO BIND ANTIGEN; PRESENCE OF** ANTIBODY **/ANTIGEN BINDING COMPLEX INDICATES INFECTION**
Inventor: Rajashekara, Gireesh, St. Paul, MN

Nagaraja, Kakambi V., Roseville, MN
Kapur, Vivek, St. Anthony, MN
Assignee: Regents of the University of Minnesota(02), Minneapolis, MN
Minnesota, University of Regents (Code: 56024)
Examiner: Swartz, Rodney P (Art Unit: 161)
Law Firm: Merchant & Gould P.C.

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 6495334	A	20021217	US 99230078	19990520
PCT	WO 9803656		19980129	WO 97US12639	19970718
		371:			
		102e:			

Fulltext Word Count: 4524

3/3/85 (Item 5 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01025019
Improvements in or relating to detection of salmonella
Verbesserungen im oder mit Bezug auf den Nachweis von Salmonella
Ameliorations en ce qui concerne la detection de Salmonella
PATENT ASSIGNEE:
UNILEVER N.V., (200910), P.O. Box 760, 3000 DK Rotterdam, NL\(Applicant designated states: , CH; DE; ES; FR; IT; LI; NL; SE)
UNILEVER PLC, (200929), Unilever House Blackfriars P.O. Box 68, London EC4P 4BQ, GB\(Applicant designated states: , GB)
INVENTOR:
Berry, Mark John, Unilever Research Colworth, Colworth House, Sharnbrook, Bedford MK44 1LQ, (GB)
Metcalfe, Mark Andrew, 106 Ashtree Road, Bitterne Park, Southampton, Hampshire SO18 1LZ, (GB)
Parry, Steven H., Unilever Research Colworth, Colworth House, Sharnbrook, Bedford MK44 1LQ, (GB)
LEGAL REPRESENTATIVE:
Ebner von Eschenbach, Jennifer et al (92001), Ladas & Parry, Dachauerstrasse 37, 80335 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 915158 A2 990512 (Basic)
EP 915158 A3 991020
APPLICATION (CC, No, Date): EP 98203646 981028;
PRIORITY (CC, No, Date): EP 97308838 971104
DESIGNATED STATES: CH; DE; ES; FR; GB; IT; LI; NL
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: C12N-015/13; C07K-016/12; C12N-005/20; A61K-039/112; G01N-033/569; G01N-033/577; C07K-014/255
ABSTRACT WORD COUNT: 55
NOTE:
Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9922	1121
SPEC A	(English)	9922	6331

Total word count - document A 7452
Total word count - document B 0
Total word count - documents A + B 7452

3/3/86 (Item 6 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00509113
METHOD OF TESTING FOR SALMONELLA
VERFAHREN ZUR PRUFUNG FUR SALMONELLA
PROCEDE DE DEPISTAGE DE LA SALMONELLE
PATENT ASSIGNEE:
THE MINISTER OF AGRICULTURE FISHERIES AND FOOD IN HER BRITANNIC MAJESTY'S GVT. OF THE U. K. OF GREAT BRITAIN AND N. IRELAND, (819069), Whitehall Place, London SW1A 2HH, (GB), (Proprietor designated states: all)
INVENTOR:
THORNS, Christopher, John 11 Lincoln Drive, Pyrford, Woking Surrey GU22 8RL, (GB)
LEGAL REPRESENTATIVE:
Greaves, Carol Pauline et al (50416), Batchellor, Kirk & Co. 102-108 Clerkenwell Road, London EC1M 5SA, (GB)
PATENT (CC, No, Kind, Date): EP 551325 A1 930721 (Basic)
EP 551325 B1 000315
WO 9206197 920416
APPLICATION (CC, No, Date): EP 91917128 911001; WO 91GB1690 911001
PRIORITY (CC, No, Date): GB 9021290 901001; GB 9022570 901017; GB 9106546 910327
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IT; LI; LU; NL; SE
INTERNATIONAL PATENT CLASS: C12N-015/31; C12N-015/62; G01N-033/569; C12N-001/20; C12P-021/08
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200011	1205
CLAIMS B	(German)	200011	1124
CLAIMS B	(French)	200011	1312
SPEC B	(English)	200011	9178

Total word count - document A 0
Total word count - document B 12819
Total word count - documents A + B 12819

3/3/88 (Item 1 from file: 357)
DIALOG(R)File 357:Derwent Biotech Res.

0345506 DBR Accession No.: 2004-17798 PATENT
Salmonella antigen formulation useful for identifying SE-infected fowl and fowl inoculated with SE-attenuated vaccine, comprising Salmonella enteritidis flagellin 9 kDa polypeptide - bacterium protein antigen and immunization in fowl for attenuated vaccine and infection therapy
AUTHOR: OHTA H; EKAWA T; TOYATA Y; YAMAMOTO S
PATENT ASSIGNEE: CAF LAB INC **2004**
PATENT NUMBER: WO 200455045 PATENT DATE: 20040701 WPI ACCESSION NO.: 2004-517400 (200449)

PRIORITY APPLIC. NO.: WO 200213148 APPLIC. DATE: 20021216
NATIONAL APPLIC. NO.: WO 2002JP13148 APPLIC. DATE: 20021216
LANGUAGE: Japanese

3/3/90 (Item 1 from file: 340)
DIALOG(R)File 340:CLAIMS(R)/US Patent
(c) 2005 IFI/CLAIMS(R). All rts. reserv.

10021379 2001-0021386 2001-0005641
C/SALMONELLA VACCINE; INDUCING ANTIBODIES AGAINST FLAGELLIN OR FLAGELLA
Inventors: Nuijten Petrus Johannes Maria (NL); Witvliet Maarten Hendrik (NL)
Assignee: Unassigned Or Assigned To Individual
Assignee Code: 68000

	Publication Number	Kind	Date	Application Number	Date
	US 20010021386	A1	**20010913**	US 2000749025	20001227
Priority Applic:				EP 99204564	19991228

3/3/91 (Item 2 from file: 340)
DIALOG(R)File 340:CLAIMS(R)/US Patent
(c) 2005 IFI/CLAIMS(R). All rts. reserv.

3801414 0245501
C/RECOMBINANT SEF14 FIMBRIAL **PROTEIN FROM SALMONELLA; REACTING A SAMPLE OBTAINED FROM POULTRY WITH A TRUNCATED SEF14 ANTIGEN TO PERMIT ANTI-SALMONELLA** ENTERITIDIS ANTIBODIES **TO BIND ANTIGEN; PRESENCE OF** ANTIBODY **/ANTIGEN BINDING COMPLEX INDICATES INFECTION**
Inventors: Kapur Vivek (US); Nagaraja Kakambi V (US); Rajashekara Gireesh (US)
Assignee: Minnesota, University of Regents
Assignee Code: 56024

	Publication Number	Kind	Date	Application Number	Date
	US 6495334	B1	**20021217**	US 99230078	19990520
Internat. Convent.:	WO 9803656		19980129	WO 97US12639	19970718
				Section 371:	19990520
				Section 102(e):	19990520
Priority Applic:				US 99230078	19990520
Provisional Applic:				US 60-22191	19960719

Calculated Expiration: 20170718
? logoff hold
06jul05 09:55:12 User228206 Session D2460.7
$0.09 0.026 DialUnits File155
$0.21 1 Type(s) in Format 9
$0.21 1 Types
$0.30 Estimated cost File155
$0.08 0.013 DialUnits File5
$0.08 Estimated cost File5
$0.14 0.013 DialUnits File73
$0.14 Estimated cost File73
$0.38 0.079 DialUnits File349
$4.80 3 Type(s) in Format 3

```
        $4.80  3 Types
  $5.18 Estimated cost File349
        $0.04    0.013 DialUnits File10
  $0.04 Estimated cost File10
        $0.33    0.026 DialUnits File399
           $5.50  2 Type(s) in Format  3
        $5.50  2 Types
  $5.83 Estimated cost File399
        $0.31    0.053 DialUnits File654
           $0.70  1 Type(s) in Format  3
        $0.70  1 Types
  $1.01 Estimated cost File654
        $0.11    0.026 DialUnits File35
           $2.30  1 Type(s) in Format  9
        $2.30  1 Types
  $2.41 Estimated cost File35
        $0.03    0.013 DialUnits File203
  $0.03 Estimated cost File203
        $0.21    0.040 DialUnits File348
           $3.40  2 Type(s) in Format  3
        $3.40  2 Types
  $3.61 Estimated cost File348
        $0.06    0.013 DialUnits File444
  $0.06 Estimated cost File444
        $0.04    0.013 DialUnits File143
  $0.04 Estimated cost File143
        $0.07    0.013 DialUnits File16
  $0.07 Estimated cost File16
        $0.55    0.026 DialUnits File357
           $2.45  1 Type(s) in Format  3
        $2.45  1 Types
  $3.00 Estimated cost File357
        $0.05    0.013 DialUnits File94
  $0.05 Estimated cost File94
        $0.06    0.013 DialUnits File98
  $0.06 Estimated cost File98
        $0.69    0.040 DialUnits File340
           $3.02  2 Type(s) in Format 42
        $3.02  2 Types
  $3.71 Estimated cost File340
        $0.05    0.013 DialUnits File65
  $0.05 Estimated cost File65
        OneSearch, 18 files,  0.448 DialUnits FileOS
  $0.26 TELNET
 $25.93 Estimated cost this search
 $25.93 Estimated total session cost   0.448 DialUnits

Logoff: level 05.05.00 D  09:55:12
```

Med Microbiol. 1998 Jun;47(6):489-97. Related Articles, Links

SERE, a widely dispersed bacterial repetitive DNA element.

Rajashekara G, Koeuth T, Nevile S, Back A, Nagaraja KV, Lupski JR, Kapur V.

Department of Veterinary PathoBiology, University of Minnesota, St Paul 55108, USA.

The presence of a Salmonella serotype Enteritidis repeat element (SERE) located within the upstream regulatory region of the sefABCD operon encoding fimbrial proteins is reported. DNA dot-blot hybridisation analyses and computerised searches of genetic databases indicate that SERE is well conserved and widely distributed throughout the bacterial and archaeal kingdoms. A SERE-based polymerase chain reaction (SERE-PCR) assay was developed to fingerprint 54 isolates of Enteritidis representing nine distinct phage types and 54 isolates of other Salmonella serotypes. SERE-PCR identified five distinct fingerprint profiles among the 54 Enteritidis isolates; no correlation between phage types and SERE-PCR fingerprint patterns was noticed. SERE-PCR was reproducible, rapid and easy to perform. The results of this investigation suggest that the limited heterogeneity of SERE-PCR fingerprint patterns can be utilised to develop serotype- and serogroup-specific fingerprint patterns for isolates of Enteritidis.

PMID: 9879967 [PubMed - indexed for MEDLINE]

1: J Med Microbiol. 1998 Jun;47(6):489-97. Related Articles, Links

SERE, a widely dispersed bacterial repetitive DNA element.

Rajashekara G, Koeuth T, Nevile S, Back A, Nagaraja KV, Lupski JR, Kapur V.

Department of Veterinary PathoBiology, University of Minnesota, St Paul 55108, USA.

The presence of a Salmonella serotype Enteritidis repeat element (SERE) located within the upstream regulatory region of the sefABCD operon encoding fimbrial proteins is reported. DNA dot-blot hybridisation analyses and computerised searches of genetic databases indicate that SERE is well conserved and widely distributed throughout the bacterial and archaeal kingdoms. A SERE-based polymerase chain reaction (SERE-PCR) assay was developed to fingerprint 54 isolates of Enteritidis representing nine distinct phage types and 54 isolates of other Salmonella serotypes. SERE-PCR identified five distinct fingerprint profiles among the 54 Enteritidis isolates; no correlation between phage types and SERE-PCR fingerprint patterns was noticed. SERE-PCR was reproducible, rapid and easy to perform. The results of this investigation suggest that the limited heterogeneity of SERE-PCR fingerprint patterns can be utilised to develop serotype- and serogroup-specific fingerprint patterns for isolates of Enteritidis.

PMID: 9879967 [PubMed - indexed for MEDLINE]

Infect. Immun., Dec 1994, 5376-5383, Vol 62, No. 12

A Salmonella enteritidis 11RX pilin induces strong T-lymphocyte responses

AD Ogunniyi, PA Manning and I Kotlarski
Department of Microbiology and Immunology, University of Adelaide, Australia.

Our previous work, using proteins fractionated by sodium dodecyl sulfate-polyacrylamide gel electrophoresis to define antigens of Salmonella enteritidis 11RX able to stimulate T cells from S. enteritidis 11RX-primed (BALB/c x C57BL/6)F1 mice, had indicated the presence of a major antigenic determinant of 14 to 18 kDa (H.-M. Vordermeier and I. Kotlarski, Immunol. Cell. Biol. 68:299-305, 1990). The 14-kDa size is similar to that of the monomeric units of one of the fimbrial structures, SEF14, produced by a human enteropathogen, S. enteritidis 27655 (J. Feutrier, W. W. Kay, and T. J. Trust, J. Bacteriol. 168:221-227, 1986). Here we present data which indicate that S. enteritidis 11RX also produces this protein and that it is able to elicit delayed-type hypersensitivity reactions in S. enteritidis 11RX- primed animals and to stimulate in vitro proliferation of, and cytokine release from, T cells obtained from these animals, implying that this fimbrial protein is likely to be an important immunogen of S. enteritidis. The protein was purified to homogeneity and is free from contamination with lipopolysaccharide. Standard immunoblot analysis with unabsorbed S. enteritidis 11RX antiserum and antiserum absorbed with Salmonella typhimurium C5 and various strains of Escherichia coli, as well as a panel of anti-14-kDa-protein monoclonal antibodies, suggests that this fimbrial protein is not the common antigen expressed by a number of organisms belonging to the family Enterobacteriaceae. Immunogold electron microscopy with one of these monoclonal antibodies confirms that the 14-kDa protein and SEF14 are identical.

J. Bacteriol., 05 1993, 2523-2533, Vol 175, No. 9

Characterization of three fimbrial genes, sefABC, of Salmonella enteritidis

SC Clouthier, KH Muller, JL Doran, SK Collinson and WW Kay
Department of Biochemistry and Microbiology, University of Victoria, British Columbia, Canada.

Salmonella enteritidis produces thin, filamentous fimbriae designated SEF14. A 3.9-kb region of a 5.3-kb fragment encoding genes responsible for SEF14 biosynthesis was sequenced and found to contain three genes, sefABC. sefA encoded a novel fimbrin, the structural subunit of SEF14 fimbriae. sefB and sefC encoded proteins homologous to Escherichia coli and Klebsiella pneumoniae fimbrial periplasmic chaperone proteins and fimbrial outer membrane proteins, respectively, and are the first such genes to be characterized from Salmonella spp. in vitro expression directed by the 5.3-kb DNA fragment identified SefA, SefB, and SefC as approximately 14,000-, 28,000-, and 90,000-M(r) proteins, respectively, which correlated with their predicted amino acid sequences. sefB and sefC were not expressed in the absence of sefA. Primer extension analysis of sefABC revealed two major transcription start sites located upstream of sefA. Transcription of sefBC also initiated from the sefA promoter region. Secondary-structure analysis of the mRNA transcript for sefABC predicted the formation of two stable stem-loop structures in the intercistronic region between sefA and sefB indicative of differential regulation of SefA, SefB, and SefC translation. E. coli cells carrying the 5.3-kb DNA fragment of S. enteritidis DNA were unable to assemble distinguishable SEF14 fimbriae; however, immunogold- labelled SEF14 fimbriae were displayed on E. coli clones containing a 44-kb DNA fragment which encompassed the 5.3-kb region. Therefore, sefABC genes make up part of a complex sef operon responsible for the expression and assembly of SEF14 fimbriae.

the SEF14 fimbrial antigen of Salmonella enteritidis (Thorns et al. (1996) Microb. Pathog. 20: 235-246);

0558783 PMID: 8155478

The use of latex particle agglutination to specifically detect Salmonella enteritidis .

Thorns C J; McLaren I M; Sojka M G

Department of Bacteriology, Central Veterinary Laboratory, New Haw, Addelestone, Surrey, England, UK.

International journal of food microbiology (NETHERLANDS) Jan 1994, 21 (1-2) p47-53, ISSN 0168-1605 Journal Code: 8412849

Publishing Model Print

Document type: Journal Article; Review; Review, Tutorial

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

This paper reviews the development and evaluation of a latex particle agglutination test to specifically identify cultured Salmonella **enteritidis** organisms. The test is based on the use of two monoclonal antibody-coated latex reagents, one of which detects the recently discovered SEF14 **fimbriae** expressed predominantly by S. **enteritidis** and S. dublin organisms, while the second reagent detects the H'p' antigen of S. dublin **flagella** . In a series of field trials 141 out of 142 strains of S. **enteritidis** from eighteen phage types were correctly identified by the latex test. A further 175 salmonella isolates representing 35 serotypes were tested and only two false-positives (S. dublin) in the latex test were recorded. This is the first rapid serotype specific test for S. **enteritidis** to be developed, and highlights the potential advantage of fimbrial antigens as novel diagnostic antigens of the future. (13 Refs.)

Descriptors: *Latex Fixation Tests; * **Salmonella Food Poisoning** --microbiology--MI; * **Salmonella enteritidis --isolation and purification** --IP; Animals; Humans; **Salmonella Food Poisoning** --diagnosis--DI; **Salmonella enteritidis --classification** --CL; Sensitivity and Specificity ; Serotyping

Record Date Created: 19940519

Record Date Completed: 19940519

13378745 PMID: 10334592

Effect of pH, temperature and surface contact on the elaboration of fimbriae **and** flagella **by Salmonella serotype** Enteritidis .

Walker S L; Sojka M; Dibb-Fuller M; Woodward M J

Bacteriology Department, Central Veterinary Laboratory, Addlestone, Surrey.

Journal of medical microbiology (ENGLAND) Mar 1999, 48 (3) p253-61, ISSN 0022-2615 Journal Code: 0224131

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Survival of enteric pathogens exposed to various environmental stresses depends upon a number of protective responses, some of which are associated with induction of virulence determinants. **Flagella** and **fimbriae** are putative virulence determinants of Salmonella spp. and ELISAs specific for the detection of **flagella** and SEF21, SEF14 and SEF17 **fimbriae** were used to assess the effect of temperature and pH upon their elaboration by isolates of Salmonella serotype **Enteritidis** in planktonic growth and on the surface of two-dimensional gradient agar plates. For three phage type 4 isolates of **Enteritidis** of comparative clinical provenance, similar phenotypes for the elaboration of these surface antigens were observed. SEF14 **fimbriae** were elaborated in planktonic growth at 37 degrees C, but not 20 degrees C, at pH 4.77 and above but not at pH 4.04; whereas on agar gradient plates SEF14 **fimbriae** were elaborated poorly but with best yields at pH 4.04. SEF17 **fimbriae** were elaborated in planktonic growth at 20 degrees C, but not at 37 degrees C, at pH 6.18 and above but not at pH 5.09 or below; whereas on agar gradient plates SEF17 **fimbriae** were elaborated well even at pH 4.65. SEF21 **fimbriae** were expressed very poorly under all conditions tested. Planktonic growth at 37 degrees C induced least **flagella** whereas growth at 20 degrees C, and particularly surface growth at lower pH values, induced a 'hyper-flagellate' phenotype. Single colonies allowed to form on gradient agar plates were shown to generate different colonial morphologies which were dependent on initial pH. These results demonstrate that the physicochemical environment is an important determinant of bacterial response, especially the induction of putative virulence factors.

Tags: Research Support, Non-U.S. Gov't

Descriptors: *Antigens, Bacterial; * **Fimbriae** Proteins; * **Fimbriae** , Bacterial--metabolism--ME; * **Flagella** --metabolism--ME; *Hydrogen-Ion Concentration; * **Salmonella enteritidis --growth and development** --GD; *Temperature; Animals; Bacterial Proteins--metabolism--ME; Culture Media; Enzyme-Linked Immunosorbent Assay; **Salmonella enteritidis --metabolism** --ME; **Salmonella enteritidis --ultrastructure** --UL; Surface Properties

CAS Registry No.: 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0 (Culture Media); 0 (SEF21 protein, Salmonella enteritidis); 0 (sefA protein, Salmonella enteritidis); 147680-16-8 (Fimbriae Proteins)

Record Date Created: 19990602

Record Date Completed: 19990602

J Vet Diagn Invest. 1996 Jul;8(3):310-4. Related Articles, Links

A dot immunobinding assay (dot-ELISA) for the rapid serodiagnosis of Salmonella enteritidis infection in chickens.

Charles SD, Sreevatsan S, Bey RF, Sivanandan V, Halvorson DA, Nagaraja KV.

Department of Veterinary PathoBiology, College of Veterinary Medicine, University of Minnesota, St. Paul 55108, USA.

A dot immunobinding assay (DIA) was developed for the detection of antibodies to Salmonella enteritidis. Western blot analysis of outer membrane proteins from SE identified 2 polypeptides of molecular masses 43 and 46 kD that were specific for S. enteritidis. These 2 polypeptides were utilized as antigens in the DIA. The DIA was tested on sera from chickens experimentally infected with S. enteritidis. Results of the DIA were compared with that of conventional microagglutination and serum plate tests. The DIA was a highly specific and sensitive test that can be useful for screening birds to determine if they are infected with S. enteritidis. Its simplicity, reliability, reproducibility, and speed in interpreting the assay results makes it a useful screening test for flock monitoring.

PMID: 8844573 [PubMed - indexed for MEDLINE]

Biochim Biophys Acta. 1998 Sep 8;1387(1-2):355-68. Related Articles, Links

Periplasmic and fimbrial SefA from Salmonella enteritidis.

Clouthier SC, Collinson SK, Lippert D, Ausio J, White AP, Kay WW.

Department of Biochemistry and Microbiology, Petch Building, University of Victoria, P.O. Box 3055, Victoria, B.C. V8W 3P6, Canada.

Salmonella enteritidis produces thin, filamentous fimbriae composed of the fimbrin subunit SefA. Although insoluble in most detergents and chaotropic agents, these fimbriae were soluble at pH 10.5. Furthermore, in sodium dodecyl sulfate, these fibers depolymerized into monomers, dimers and other multimers of SefA, which precipitated on removal of the detergent. In contrast, unassembled periplasmic SefA fimbrins purified from Escherichia coli expressing cloned sefA and sefB were readily soluble in aqueous solution. Fimbrial and periplasmic SefA also differed in their reaction with an anti-SEF14 monoclonal antibody and in their surface hydrophobicity, indicating that the two forms had different properties. Precise mass measurements of periplasmic and fimbrial SefA by mass spectroscopy showed that these variations were not due to post-translational modifications. Periplasmic SefA consisted primarily of intact as well as some N-terminally truncated forms. The main 24 amino acid, N-terminally truncated form of periplasmic SefA was present as a 12.2 kDa monomer which had a low tendency to dimerize whereas intact periplasmic SefA was present as a 34.1 kDa homodimer. Intact periplasmic SefA also formed stable multimers at low concentrations of chemical cross-linker but multimerization of the truncated form required high concentrations of protein or cross-linker. Thus, SefA fimbrins appear to multimerize through their N-termini and undergo a conformational change prior to assembly into fibers. Within these fibers, subunit-subunit contact is maintained through strong hydrophobic interactions.

First Hit Previous Doc Next Doc Go to Doc#

Generate Collection Print

L4: Entry 12 of 60 File: PGPB Oct 3, 2002

DOCUMENT-IDENTIFIER: US 20020142008 A1
TITLE: Immunogenic pili presenting foreign peptides, their production and use

Detail Description Paragraph:
[0036] Oligonucleotide primers corresponding to the cleavage sites in proper orientation separated by desired sequences to be incorporated into the chimeric papA template are synthesized by conventional techniques. They are used to fill the cleaved recessed termini. A salmonella flagellin epitope corresponding to 6 amino acids and an epitope of human interleukin-4 peptide corresponding to 20 amino acids have been inserted into papA genetic cassettes. These genetic templates in Escherichia coli HB101 strain result in pili being expressed at the surface of the bacterium as demonstrated by electron microscopy and expression of hybrid pili as demonstrated by simultaneous binding of a single protein band in SDS-PAGE gels by Western blotting using polyclonal murine antibody to the pili and foreign epitopes. Cohorts of 5 mice each immunized with the hybrid product can elicit antibodies to the foreign epitope as demonstrated in ELISA tests.

Previous Doc Next Doc Go to Doc#

L4: Entry 19 of 60 File: USPT Jul 6, 2004

DOCUMENT-IDENTIFIER: US 6759241 B1
** See image for Certificate of Correction **
TITLE: Adjuvant comprising a lipopolysaccharide antagonist

Other Reference Publication (171):
Wu, et al., "Expression of immunogenic epitopes of hepatitis B surface antigen with hybrid flagellin proteins by a vaccine strain of salmonella." 1989, Proc. Natl. Acad. Sci USA, 86:4726-30.

DOCUMENT-IDENTIFIER: US 6585980 B1
TITLE: Flagellin gene, FlaC of Campylobacter

Other Reference Publication (3):
Joys, TM et al, Infection and Immunity, vol. 59(6), pp. 3330-3332, Sep. 1991, Epitope mapping of the d Flagellar antigen of Salmonella muenchen.*

First Hit Fwd Refs Previous Doc Next Doc Go to Doc#

Generate Collection Print

L4: Entry 27 of 60 File: USPT Oct 2, 2001

DOCUMENT-IDENTIFIER: US 6297048 B1
TITLE: Hepatitis therapeutics

Other Reference Publication (96):
Newton et al., "Immune Response to Cholera Toxin Epitope Inserted in Salmonella Flagellin," Science 244: 70-72, 1989.

Previous Doc Next Doc Go to Doc#

L4: Entry 33 of 60 File: USPT Jul 18, 2000

DOCUMENT-IDENTIFIER: US 6090586 A
TITLE: 66 kDa antigen from Borrelia

Brief Summary Text (39):
It is contemplated that the antigens and immunogens of the invention will be useful in providing the basis for one or more assays to detect antibodies against Bb. Previous assays have used whole Bb as the antigen. Sera from normal individuals not exposed to Bb often contain antibodies that react with Bb antigens, in particular antigens that have epitopes in common with other bacteria. It is necessary to adjust assay conditions or the diagnostic threshord of reactivity to avoid false positive reactions due to these cross-reactive antibodies in normal sera. These adjustments may in turn decrease the sensitivity of the assay and lead to false negative reactions, particularly in the early stages of Bb infection. Assays using the disclosed 66 kDa proteins or antigenic polypeptides thereof, are expected to give superior results both in sensitivity and selectivity when compared to assays that use whole Bb or even purified flagella in either an indirect ELISA or an antibody capture ELISA format. Western immunoblots based on reactions with such antigens (whole Bb, flagella and the like) have been difficult to interpret due to the presence of antibodies in sera from unexposed individuals. These antibodies cross react with Bb antigens, most particularly the 41 kDa flagellin and the 60 kDa common antigen protein. Generally, assays which use whole organisms or purified flagella tend to contain antigens with epitopes that will cross react with other bacterial antigens. For example, the N and C terminal regions of the Bb flagellin possess 52-55% sequence identity with the Salmonella typhimurium and Bacillus subtilis sequences (Wallich et al., 1990), exemplifying the highly conserved nature of flagellin structure. The 60 kDa Bb protein is likewise 58 homologous with the E. coli protein (Shanafelt et al., 1991). Such cross reactivity is not likely with the 66 kDa antigen, which is apparently unique to Bb.

DOCUMENT-IDENTIFIER: US 4916075 A
TITLE: Differential homogeneous immunosensor device

Detailed Description Text (74):
The coated CPF cell is connected to the sample and hold amplifier as previously described. A sample of 100 ul volume, usually a culture broth suspected of containing Salmonella (at a concentration of 10.sup.5 cells/ml or greater) is acidified and re-neutralized to free the flagellar antigen, is added to the cell followed by a 100 ul volume of an anti-salmonella-antibody conjugate to the lactoperoxidase-glucose oxidase complex. The antibody for the complex conjugate may be of the same competitive epitope specificity or specific to a different epitope found on the flagellar antigen. At some interval of time later, the measurement is made by the addition of 100 ul of substrate solution containing 3% glucose in a BSA-PBS-KI buffer pH 7.2. The presence of specific Salmonella is made by a measurable response greater than any non-specific response observed from the reference side of the CPF cell.

Hit List

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 4 of 4 returned.

☐ 1. Document ID: US 5807694 A

L6: Entry 1 of 4 File: USPT Sep 15, 1998

DOCUMENT-IDENTIFIER: US 5807694 A
TITLE: Detection of salmonella enteritidis and other pathogenic microorganisms and monoclonal antibody useful therefor

Brief Summary Text (8):
Infection by Salmonella enteritidis threatens the safety of human consumers and the economic soundness of the egg and poultry industry, as well as the food industry in general. The severe outbreak of this organism in 1988 alone in Britain resulted in a permanent 20% loss in volume of the egg market (U.S. Department of Agriculture, Salmonella enteritidis Task Force (1990)). Its control and elimination requires early detection in raw shell eggs. Traditional methods for detection of Salmonella enteritidis in eggs are scarce and require up to one week in order to culture and identify bacterial isolates. These methods are also labour-intensive, involve isolation of the organism using pre-enrichment as well as selective enrichment procedures and serological confirmation tests (Van der Zee, Int. J. Food Microbiol. (1994)21:41). More rapid methodology available for serological detection of Salmonella enteritidis is represented by two basic enzymatic-linked immunoassay (ELISA) procedures, the sandwich and indirect ELISA. Both employ antisera as well as monoclonal antibodies produced against flagella, lipopolysaccharides (LPS) and fimbriae SEF14 (Van Zijderveld et al., J. Clin. Microbiol. (1992) 30:2560). In contrast to conventional methods, these tests can detect Salmonella enteritidis in two days. However, they are not free of drawbacks. The tests involve time-consuming enrichment incubations, exhibit varying degrees of cross-reactions, particularly between serogroup B (S. typhimurium) and D lipopolysaccharides and both systems have been known to produce false positive reactions.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw De

☐ 2. Document ID: US 5510241 A

L6: Entry 2 of 4 File: USPT Apr 23, 1996

DOCUMENT-IDENTIFIER: US 5510241 A
TITLE: Method of testing for the presence of Salmonella serotypes expressing Salmonella enteritidis fimbrial antigen (SEFA) and reagents therefore

Abstract Text (1):
A method of testing for the presence of Salmonella serotypes S. enteritidis and S.

dublin is provided. Novel monoclonal antibodies are used to detect the presence of an epitope specific for these serotypes in cultures which have been grown on selected media which enhance the expression of said epitope in fimbrial sites. Test kits utilizing the antigen or its epitopic parts, antibodies and/or the media are further provided.

Brief Summary Text (4):
It is known that Salmonella organisms have fimbria-like structures on their surface (Duguid; J. P.; and R. R. Gillies. (1958) J. Pathol. Bacteriol. 75:519-520., and published evidence (Clegg, S., and G. A. Gerlach (1987) J. Bacteriol. 169:934-938), suggests that there are antigenically distinct types of such fimbriae, ie possessing specific epitopes on the fimbrial antigens. The possibility of immunogenic tests for Salmonella, at least S. enteritidis, based upon these fimbrial antigens has been suggested (MAFF, Central veterinary Laboratory "Animal Health" (1989):33). Methods of raising MABs to antigens on the surface of microorganisms such as Salmonella are generally known.

Brief Summary Text (5):
Unfortunately known methods of raising antibodies to Salmonella surface antigens only go part way toward providing an immunological test for Salmonella. The basis of all such tests is to isolate microorganisms from a sample suspected of harbouring Salmonella organisms, then to grow the micro-organisms in vitro in a suitable culture medium until a quantity of the Salmonella sufficient to detect by such a test is believed to be present in the medium, and then applying the test. A problem occurs in that it is found that although Salmonella micro-organisms produce their fimbrial antigen when they grow in vivo, e.g. in the gut, in animal tissues or fluids, in food products and in some natural environments, many of the fimbrial antigens are not produced when they are grown in vitro on most culture media.

Brief Summary Text (6):
The inventors have investigated a range of culture media with the object of identifying the conditions necessary to induce the Salmonella micro-organisms S. enteritidis and S. dublin to produce a specific fimbrial antigen during in vitro culture so that immunological tests may be applied. This has provided the novel test method of this invention and also novel MABs designated herein as "MAB 69/25" and "MAB 71/3", produced by novel hybridoma cell lines, for use in the method. Samples of these cell lines have been deposited, on 11 Oct. and 19 Dec. 1990 respectively, at the European Collection of Animal cell Cultures, PHLS Centre for Applied Microbiology & Research, Porton Down, Salisbury, Wiltshire-SP4 OJG, United Kingdom and bear Accession numbers 90101101 and 90121902 respectively.

Brief Summary Text (7):
This investigation has provided a method for testing for the presence of micro-organisms of the species Salmonella, serotypes S. enteritidis and S, dublin, using the specific fimbrial antigen or an epitopic part thereof to bind them. Thus suspect biological fluids may be tested for such antibodies with the aim of identifying cases of S. enteritidis or S. dublin infection. The particular specific antigen identified by the present inventors has been found to be expressed almost exclusively by organisms of these two serotypes, the only other serotypes expressing it being considered very rare. A particular advantage of the method is thus that, out of the hundreds of serotypes of Salmonella found in nature, it can detect two of the most significant with regard to food poisoning.

Brief Summary Text (9):
The inventors have found that exploitation of the ability of certain media to enable or cause Salmonella to produce this specific fimbrial antigen (Salmonella enteriditis fimbrial antigen-SEFA) during in vitro culture, whereby prior to the step of exposure to the antibody the micro-organisms are grown in vitro in or on such a medium such that they produce antigenic fimbriae having epitopic sites thereupon, allows reliable immuno-testing.

Brief Summary Text (10):
The influence of the medium appears to be particularly pronounced in the case of the said important Salmonella micro-organisms S. enteritidis and S. dublin. The method of the invention is therefore particularly suitable for the specific testing for the presence of S. enteritidis and S. dublin by the use of antibody-antigen binding, as these two Salmonella strains produce strongly antigenic fimbriae under the conditions of this invention, particularly of the preferred embodiment. The method appears to be applicable to testing for Salmonella in all types of samples, including food samples, environmental samples such as contaminated water, animal waste products, effluent etc.

Brief Summary Text (11):
The content of the culture medium is a crucial factor in the production of epitopic sites on the Salmonella fimbria. Media which are "defined" or at least "semi-defined" as understood in the art are preferred, for example media having at least 20% by weight of their nutrient composition made up of "defined" nutrients which are inorganic salts and/or organic compounds of known molecular structure. Peptone water and Enriched E broth (see Francis et al (1982) J. Clinical. Microbiol.. 15: 181-183) are examples of preferred liquid media although Slanetz broth, Heart infusion broth and Vogel Bonner broth are media capable of supporting expression of the specific sites by the target Salmonella organisms in many cases. Solid media examples include desoxycholate citrate agar, McConkey agar, Nutrient agar, Salmonella Shigella agar, Sheep blood agar, Xylose Lysine descholate. For more reliable and/or sensitive testing it may be necessary to use a medium that is mope potent in supporting the expression, as is evidenced by the experiments referred to herein; examples of such media being Oxoid Isosensitest and Sensitest agars.

Brief Summary Text (12):
Thus the present invention provides a method of testing for the presence of microorganisms of Salmonella serotypes S. enteritidis or S. dublin comprising exposing an analyte suspected of containing them or their fimbrial antigen (SEFA as described herein) to an antibody raised to said fimbrial antigen or to an epitopic part thereof, and then relating the occurrence of antibody-antigen specific binding to the presence of said serotypes.

Brief Summary Text (14):
The present invention further provides a method of determining the identity of a Salmonella serotype as being either S. enteritidis or S. dublin comprising (a) exposing an analyte suspected of comprising at least one of said serotypes or their fimbrial antigen (SEFA as described herein) to an antibody raised to said fimbrial antigen, or a part thereof, and then relating the occurence of antibody-antigen specific binding to the presence of one of said serotypes then, (b) exposing a further sample of said analyte suspected of comprising at least one of said serotypes to an antibody raised to specifically bind to a first one of said serotypes but not the second and relating the occurence of antibody-antigen specific binding to the presence of that serotype and, optionally, (c) exposing a further sample of said analyte suspected of comprising at least one of said serotypes to an antibody raised to specifically bind to the second one of said serotypes but not to the first and relating the occurence of antibody-antigen specific binding to the presence of said second serotype.

Brief Summary Text (15):
The present invention further provides a method of testing for the presence of organisms of Salmonella serotypes S. enteritidis or S. dublin comprising (a) seeding a sample of an analyte suspected of containing them into/onto a culture medium selected for its ability to support expression of Salmonella enteritidis fimbrial antigen (SEFA); (b) culturing said seeded culture medium and; (c) exposing a sample derived from the culture derived from step (b) to an antibody raised to said fimbrial antigen, or an epitopic part thereof, and then relating the

occurrence of antibody-antigen specific binding to the presence of said serotypes.

Brief Summary Text (25):
Growth of the Salmonella micro-organisms on the medium in the process of the invention may be under entirely standard conditions, e.g. by incubation at about 37.degree. C. until a sufficient number of the micro-organisms having epitopic sites on their fimbriae have grown, for example typically by overnight incubation. An incubation temperature of above 22.degree. C. is preferred for the effective production of the antigenic fimbriae bound by the monoclonal antibodies of the present invention. In applying the test in practice, a sample from a suspected material would be taken, containing a cross-section of all the micro-organisms present in the material, and these would then be grown on the medium so that Salmorella, if present, grows among any other micro-organisms that might be present. The presence of other micro-organisms does not seem to adversely affect the test. The test is further of use in the identification of the serotype of pure cultures of Salmonella organisms; ie: as S. enteritidis, S. dublin or other, further antibodies being usable to distinguish them further.

Brief Summary Text (26):
Procedures for raising both polyclonal and monoclonal antibodies to Salmonella surface antigens are well known. Thus, for example, S. enteritidis may be grown on a medium as described above so that antigenic fimbriae are produced, these then may be used to immunise mice from which spleen cells are subsequently isolated and fused with a myeloma cell line to form hybridomas. These hybridomas may then be seeded into microwells and monitored for antibody production, e.g. by ELISA or a similar technique. Antibody-producing hybridomas may then be cloned to produce a mouse monoclonal antibody to the Salmonella fimbrial antigen. MABs may be produced by the known method of intraperitoneally injecting hybridoma cells (e.g.; 10.sup.6) into mice and withdrawing ascites after 20 days; this can be used in crude form if necessary.

Brief Summary Text (27):
A particularly preferred monoclonal antibody is one having a specific immuno-affinity for the specific S. enteritidis fimbrial antigen (SEFA) produced by growth on one of the aforementioned media, ie. an antigenic protein fraction having a molecular weight of around 14,300 identified in the fimbrial structure after such growth conditions and having a major antigenic activity, or for immunoreactive (e.g. epitopic) parts or analogues thereof. The method and kits may employ polyclonal antibodies.

Brief Summary Text (28):
Examples of such monoclonal antibodies are those identified as MAB 69/25 and MAB 71/3 above and their use further extends to (i) the determination of media suitable for growing salmonella possessing the required antigenic fimbriae and (ii) for identification of said antigenic fimbriae and antigens comprising the SEFA epitope itself. Thus further specific media suitable for the performance of the method of the invention may be easily identified by screening salmonella grown in them for the ability to produce immunoagglutination with said MABs; a positive result indicating a suitable medium.

Brief Summary Text (29):
Either the whole Salmonella micro-organisms (live or dead) or a part thereof which includes the fimbrial antigen with the SEFA epitopic site may be detected by the antibody. In the latter case methods are well known, e.g. mild heat shock treatment at 60.degree. C. for 30 minutes, for detaching fimbriae from Salmonella micro-organisms, and isolation of the fimbrial antigen in this way should lead to a more specific test result. The epitopic sites employed in the testing method of the preferred embodiment of the invention appear to be present on a fimbrial structure produced on the surface of S. enteritidis and S. dublin grown on media of the present invention and in vivo, which is less than 6 nm in diameter and consists of

identical repeating subunits each of molecular weight between 14,000 and 15,000. These fimbriae have a `kinked` conformation such that they entangle and extend in a matted form to approximately 200 nm from the cell surface. By applying size exclusion HPLC and SDS-PAGE to the fimbrial antigen isolated in such a way it has been determined that the principal antigenic protein employed appears to have a molecular weight of approximately 14,300. The sequence of isolated SEFA is given on page 20.

Brief Summary Text (30):
Exposure of the antigen to the antibody and the observation of the occurrence or otherwise of antibody-antigen binding may be carried out in ways which will be apparent to those skilled in the art of immunoassay. For example the whole micro-organisms may be exposed to a solution of the antibody for a suitable time, then after washing the micro-organisms may be exposed to a colloidal gold labelled second antibody. If the antibody is a mouse monoclonal this second antibody may, for example, be an anti-mouse Ig G. The binding of the antibody to the fimbriae may then be detected using microscopy to observe the clustering of gold particles around the fimbriae or said gold may have its visibility enhanced in known ways. Other suitable labels will occur to a man skilled in the art.

Brief Summary Text (31):
In another way immunoagglutination may be observed by simply adding a solution of the antibody to a solution or suspension of the microorgonisms or to a culture thereof or to parts thereof such as the isolated fimbriae or the antigenic protein employed by the preferred embodiment of the invention. To assist in visualising immunoagglutination the antibody may be, labelled for example with coloured latex particles as is known in the art (Hechemy K E and Michaelson (1984) Lab Management 22 27-40).

Brief Summary Text (32):
In a further way, the antigen in the form of whole micro-organisms, the isolated fimbriae or isolated SEFA may be immobilised on a substrate such as a microtitre plate well, using known methods, then this immobilised antigen may be exposed to a solution of the antibody, then after washing a second labelled antibody capable of binding to the SEFA epitope unlabelled antibody may be applied (e.g.: a labelled anti-mouse Ig G) to the wells. After further washing detection of binding between this second antibody and the antibody itself bound to the immobilised antigen may then be observed by the presence of the bound label on the well. Other antibody/second antibody combinations will occur to the man skilled in the art (e.g. bovine or chicken antibodies/anti-bovine or anti-chicken second antibodies). Kits comprising free or immobilised SEFA or fimbriae are thus provided.

Brief Summary Text (33):
In a yet further way the antibody may be immobilised on a substrate and the immobilised antibody may then be exposed to a solution containing the antigen in the form of for example whole micro-organisms, the isolated fimbriae or the antigenic protein (SEFA), together with an agent capable of competing with the antigen for binding sites on the antibody. The quantity of the agent binding to the immobilised antibody may then be determined, e.g.: by use of known, labelling techniques. For example the competing agent may be a labelled anti-mouse IgG if the antibody is a mouse monoclonal, or may be labelled fimbrial antigen.

Detailed Description Text (21):
Transmission electron microscopy of S. enteritidis 1246/89 (fusion strain) cultured for 18 hours at 37.degree. C. revealed three identifiable types of surface organelles. The majority of organisms expressed flagellae, as well as a `rigid`, straight type 1 fimbriae measuring up to 300 nm in length and 8 nm in diameter, projecting from the cell surface. The number of fimbriae on each bacterial cell was variable, and some organisms were devoid of any. A fine fibrillar material attached, usually uniformly, around the bacterium was also observed. Individual

filaments within this material were difficult to visualise, measuring less than 5 nm in diameter. Filaments had a `kinked` conformation such that they entangled with each other to form a matted appearance. The matted fibrils extended from the cell surface to approximately 200 nm within the limit of the pool of negative stain around each cell. When the same strain of S. enteritidis was incubated with MAB 69/25 and immunogold conjugate, the fimbrial material was labelled heavily with gold particles. Once labelled this antigen could be seen to extend up to 0.1 micrometers from the cell surface, and was also found in detached amorphous clumps.

Detailed Description Text (22):
Flagellae and type 1 fimbriae were unlabelled. Two further S. enteritidis strains and three S. dublin strains that reacted in the direct binding ELISA, also expressed this fimbrial material which was specifically labelled with the MAB, although many S. dublin organisms appeared within a population not to express this structure or epitope. Fimbrial antigen was not detected or labelled when the same strains of S. enteritidis and S. dublin were grown at 22.degree. C. Strains of S. gallinarum, S. pullorum and S. typhimurium grown at 37.degree. C. for 24 hr were not labelled with gold after probing with Mab.

Detailed Description Text (24):
The above experiments illustrate the identification of a specific antigen located on the fimbriae of strains of S. enteritidis grown on Slanetz broth, a semi-defined medium, at 37.degree. C., and the raising of a specific monoclonal antibody MAB 69/25 to this antigen. Tests show that MAB 69/25 binds only to certain Salmonella serotypes within serogroup D. These results were extended and confirmed when a further 264 Salmonella strains from 63 serotypes were examined. All the strains of S. enteritidis tested, regardless of phage type, reacted with this MAB. S. dublin (12/36 strains) and the one strain of S. moscow tested were the only other serotypes that were positive.

Detailed Description Text (25):
Electron microscope studies confirmed that MAB 69/25 is directed against an epitope on a fimbrial structure expressed on the bacterial surface that is morphologically distinct from flagellae and the larger type 1 fimbriae. This structure was observed only on Salmonella strains that reacted in direct binding ELISAs and these strains were labelled when examined by immune EM.

Detailed Description Text (26):
This fimbrial structure is much smaller than the type 1 fimbriae commonly found on Salmonella strains (Clegg et al above), and unlike type 3 fimbriae carried by Salmonellae, it lacks any haemagglutinating activity (Clegg et al above; Abegbola, R. A., D. C Old and S. Aleksic 1983. FEMS Microbiol. Lett. 19: 233-238; Old. D. C., and R. A. Adegbola, 1985. J. Med. Microbiol. 20: 113-121). This fimbrial structure, which carries an epitope restricted to all strains of S. enteritidis and certain strains of S. dublin and S. moscow (see Tables I and II) differs from all previously described Salmonellae structures.

Detailed Description Text (29):
AMINO ACID SEQUENCE OF SALMONELLA ENTERIDITIS FIMBRIAL ANTIGEN (SEFA).

Detailed Description Text (32):
Assessment of various media for the ability to support expression of Salmonella enteritidis fimbrial antigen (SEFA).

Detailed Description Text (69):
To prepare a batch of latex coated with rabbit polyclonal serum against flagella of S. dublin.

Detailed Description Text (112):

Fimbrial antigens were prepared from S. enteritidis 468/86 which has been identified as expressing large quantities of the fimbriae.

Detailed Description Text (113):
The organisms were grown on Sensitest agar (Oxoid, Basingstoke, United Kingdom) overnight at 37.degree. C. Bacteria were sedimented and suspended in phosphate buffered saline (PBS) pH 6.8. The fimbriae were then removed from the surface of the bacteria by heating the suspension at 60.degree. C. for 30 min. The cell-free supernatant (crude SEFA) was first purified by DEAE-sepharose anion exchange chromatography (semi-pure SEFA) followed by size exclusion high-pressure liquid chromatography (pure SEFA). The purity of the SEFA preparations was determined by sodium dodecyl-sulphate-polyacrylamide gel-electrophoresis (SDS-PAGE) using 12.5% gels.

Detailed Description Text (140):
Specific immuno-gold labelling of SEFA occurred with all the MABs (Table VII) and RaSEFA. No difference in intensity or distribution of gold particles labelling SEFA was apparent when MABs from different epitope cluster groups were tested; the gold was distributed evenly throughout SEFA in all cases and was similar to the labelling of the fimbrial antigen with RaSEFA.

Detailed Description Text (145):
FIGS. 1A and 1B are S. enteritidis negatively stained with PTA showing three distinct surface organelles. 1A; fine fimbrial material radiating from cell surface and a detached flagellum (arrow). Bar, 200 nm. 1B; fimbrial material (fa) forming matted appearance, and type 1 fimbriae (arrows). Bar 200 nm.

Detailed Description Text (146):
FIGS. 2A and 2B are S. enteritidis organisms probed with Mab 69/25 and labelled with immunogold. 1A; specific labelling of matted fimbrial antigen (fa) uniformly covering the cell surface. Bar, 600 nm. 2B; gold particles attached to matted fimbrial antigen (fa), but flagella and type 1 fimbriae (arrows) are unlabelled. Bar, 400 nm.

Detailed Description Text (147):
FIG. 3 is two S. dublin organisms from culture probed with Mab 69/25 and labelled with immunogold. Cell `a` is heavily labelled with gold particles. Cell `b` does not exhibit surface fimbrial material and is unlabelled. Flagella fragments are unlabelled. Bar, 600 nm.

Detailed Description Paragraph Table (6):
TABLE IV
Effect of growth medium on the production of SEFA fimbrial antigen by Salmonella enteritidis strains using latex agglutination.sup.a S. enteritidis strains Growth medium A B C D E F
Liquid:
Enriched E broth + + + + + + Heart Infusion broth ++ + - - + + MINCA broth - - - - - - Peptone water pH 7.2 ++ ++ ++ ++ ++ +++ Peptone water pH 6.0 ++ ++ ++ - ++ +++ Slanetz ++ ++ + - + + Vogel Bonner + - - - - - Solid: Brilliant Green - - - - - - Bismuth Sulphite - - - - - - Desoxycholate Citrate ++ ++ ++ + ++ +++ McConkey ++ ++ + + ++ +++ Nutrient ++ ++ ++ ++ ++ +++ Salmonella Shigella ++ ++ ++ ++ ++ +++ Sensitest (Isosensitest) +++ +++ +++ +++ +++ +++ Sheep blood ++ ++ ++ ++ ++ +++ Xylose Lysine-Descholate ++ ++ ++ + ++ +++
.sup.a +, agglutinates 3-4 min; ++; agglutinates 1-3 min; +++, agglutinates .ltoreq. 1 min. -, negative.

Detailed Description Paragraph Table (7):
TABLE V Detection of SEFA fimbrial antigen on Salmonella strains by the latex agglutination test. Latex agglutination No. of

strains test Serotype examined + - _____ S. enteritidis 64 64 -- S. dublin 33 28 5 S. blegdam 1 1 -- S. moscow 1 1 -- Other Salmonella strains.sup.a 181 -- 181 _____ .sup.a Serotypes listed in Table IV.

Other Reference Publication (4):
Feutrier et al, "Purification and Characteristics of Fimbriae from Salmonella enteridites", J. Bacteriol., 168(1): 221-227 (Oct. 1986).

Other Reference Publication (6):
Thorns et al, "Detection of a Novel Fimbrial Structure on the Surface of Salmonella enteriditis by Using a Monoclonal Antibody", J. Clin. Microbiol., 28(11): 2409-2414 (Nov. 1990).

CLAIMS:

1. A method of testing a sample for the presence of microorganisms for Salmonella serotypes expressing Salmonella enteritidis fimbrial antigen (SEFA) comprising the steps of:

(a) exposing a sample suspected of containing the microorganisms, or SEFA to an antibody which specifically binds to the antigen specifically bound by the monoclonal antibody secreted by ECACC 90101101 or ECACC 90121902 or an antibody which specifically binds the epitope bound by the monoclonal antibody secreted by ECACC 90101101 or ECACC 90121902;

(b) detecting antibody-antigen specific binding, wherein antigen-antibody specific binding is indicative of the presence of microorganisms selected from the group consisting of S. enteritidis, S. dublin, S. moscow and S. blegdam, and the absence of antibody-antigen specific binding is indicative of the absence of S. enteritidis.

5. A method of testing a sample for the presence of organisms of the group of Salmonella serotypes expressing SEFA comprising the steps of:

(a) seeding said sample suspected of containing the organisms into or onto a culture medium supporting the expression of Salmonella enteritidis fimbrial antigen;

(b) culturing said sample in or on the culture medium; and

(c) exposing a second sample obtained from the culturing step (b) to an antibody which specifically binds to the antigen specifically bound by the monoclonal antibody secreted by ECACC 90101101 or ECACC 90121902 or an antibody which specifically binds the epitope bound by the monoclonal antibody secreted by ECACC 90101101 or ECACC 90121902 and then detecting antibody-antigen specific binding wherein antibody-antigen specific binding is indicative of the presence of organisms of the group of Salmonella serotypes expressing SEFA.

27. A test kit as claimed in claim 25 or claim 26 wherein the SEFA is in the form of detached fimbriae.

☐ 3. Document ID: AU 2002359984 A1, WO 2004055045 A1

L6: Entry 3 of 4 File: DWPI Jul 9, 2004

DERWENT-ACC-NO: 2004-517400
DERWENT-WEEK: 200474
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: Salmonella antigen formulation useful for identifying SE-infected fowl and fowl inoculated with SE-attenuated vaccine, comprising Salmonella enteritidis flagellin 9 kDa polypeptide

INVENTOR: EKAWA, T; OHTA, H ; TOYATA, Y ; YAMAMOTO, S

PRIORITY-DATA: 2002WO-JP13148 (December 16, 2002)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
AU 2002359984 A1	July 9, 2004		000	C07K014/255
WO 2004055045 A1	July 1, 2004	J	036	C07K014/255

INT-CL (IPC): A61 K 39/00; A61 K 39/112; A61 P 31/04; C07 K 14/255; G01 N 33/53; G01 N 33/569

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

☐ 4. Document ID: CN 1361828 A, WO 200078995 A1, AU 9948172 A

L6: Entry 4 of 4 File: DWPI Jul 31, 2002

DERWENT-ACC-NO: 2001-071400
DERWENT-WEEK: 200279
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: New method for the specific detection of Salmonella enteritidis infections of poultry comprises contacting a biological sample with antigenic fragments of S. enteritidis fimbrial and/or flagellin proteins

INVENTOR: KWANG, H; LIU, W ; LOH, K Y H ; LOW, S S

PRIORITY-DATA: 1999WO-SG00061 (June 22, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
CN 1361828 A	July 31, 2002		000	C12Q001/10
WO 200078995 A1	December 28, 2000	E	047	C12Q001/10
AU 9948172 A	January 9, 2001		000	C12Q001/10

INT-CL (IPC): C07 K 14/255; C12 Q 1/10

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

```
SYSTEM:OS  - DIALOG OneSearch
  File 155:MEDLINE(R) 1951-2005/Jul W1
         (c) format only 2005 The Dialog Corp.
  File   5:Biosis Previews(R) 1969-2005/Jun W4
         (c) 2005 BIOSIS
  File  73:EMBASE 1974-2005/Jul 05
         (c) 2005 Elsevier Science B.V.
  File 349:PCT FULLTEXT 1979-2005/UB=20050630,UT=20050623
         (c) 2005 WIPO/Univentio
  File  10:AGRICOLA 70-2005/Jun
         (c) format only 2005 The Dialog Corporation
  File 399:CA SEARCH(R) 1967-2005/UD=14302
         (c) 2005 American Chemical Society
*File 399: Use is subject to the terms of your user/customer agreement.
Alert feature enhanced for multiple files, etc. See HELP ALERT.
  File 654:US Pat.Full. 1976-2005/Jul 05
         (c) Format only 2005 The Dialog Corp.
  File  35:Dissertation Abs Online 1861-2005/Jun
         (c) 2005 ProQuest Info&Learning
  File 203:AGRIS 1974-2005/Feb
         Dist by NAL, Intl Copr. All rights reserved
  File 348:EUROPEAN PATENTS 1978-2005/Jun W04
         (c) 2005 European Patent Office
  File 444:New England Journal of Med. 1985-2005/Jun W3
         (c) 2005 Mass. Med. Soc.
  File 143:Biol. & Agric. Index 1983-2005/May
         (c) 2005 The HW Wilson Co
  File  16:Gale Group PROMT(R) 1990-2005/Jul 05
         (c) 2005 The Gale Group
  File 357:Derwent Biotech Res. _1982-2005/Jul W1
         (c) 2005 Thomson Derwent & ISI
  File  94:JICST-EPlus 1985-2005/May W3
         (c)2005 Japan Science and Tech Corp(JST)
  File  98:General Sci Abs/Full-Text 1984-2004/Dec
         (c) 2005 The HW Wilson Co.
  File 340:CLAIMS(R)/US Patent 1950-05/Jun 30
         (c) 2005 IFI/CLAIMS(R)
  File  65:Inside Conferences 1993-2005/Jul W1
         (c) 2005 BLDSC all rts. reserv.

      Set  Items  Description
      ---  -----  -----------
Cost is in DialUnits
? ds
Terminal set to DLINK
? t s6/9/32 33 34 37 38 41 45 46 2 3 6 7 8 9 11 12 13 16 17 18 19 21 22 23 25
26 27 28 29 30 31 52 53

Set     Items   Description
S1        367   ENTERITIDIS? (100N) (FIMBRIA? OR FLAGELL? OR PILIN? OR PIL-
            I?) (100N) (IMMUNE OR ANTISER? OR ANTIBOD? OR IMMUNOGLOB?)
S2        193   RD (unique items)
S3         91   S2/1999:2005
S4        102   S2 NOT S3
S5        193   S2/PATENTS
S6        102   S2 NOT S3
? t s6/9/32 33 34 37 38 41 45 46 2 3 6 7 8 9 11 12 13 16 17 18 19 21 22 23 25
26 27 28 29 30 31 52 53
```

ExPASy Home page Site Map Search ExPASy Contact us Proteomics tools Swiss-Prot

Search Swiss-Prot/TrEMBL for flagellin enteritidis Go Clear

==========

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 90 AA (of which 18% low-complexity regions filtered out)
Date run: 2005-07-06 11:31:24 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to...

☐ Include query sequence

	Db	AC	Description	Score	E-value
☐	sp	Q06973	FLIC_SALMO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	147	4e-35
☐	sp	Q06972	FLIC_SALEN Flagellin (Phase-1-C flagellin) [fliC] [Sal...	147	4e-35
☐	tr	Q53WZ9	_SALEN Phase 1 flagellin [fliC] [Salmonella enteritidis]	147	4e-35
☐	tr	Q6V2W5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	147	4e-35
☐	tr	Q6V2V9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	147	4e-35
☐	tr	Q66PR7	_SALMO Phase 1 flagellin [fliC] [Salmonella montevideo]	147	4e-35
☐	tr	Q6LDG7	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	147	4e-35
☐	tr	Q6LDG6	_SALET Phase-1 flagellin [fliC1] [Salmonella enterica s...	147	4e-35
☐	tr	Q66PR6	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	147	4e-35

tr	Q66PN4	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	147	4e-35
tr	Q66PN3	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	147	4e-35
tr	Q54210	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	147	4e-35
tr	Q53998	_SALEN Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	147	4e-35
tr	Q54864	_SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	146	1e-34
tr	Q54863	_SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	146	1e-34
tr	Q54329	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	145	1e-34
tr	Q53989	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	145	1e-34
tr	Q53970	_SALDU Phase-1 flagellin [fliC1] [Salmonella dublin]	145	1e-34
tr	Q53967	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	145	1e-34
tr	Q53822	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	145	1e-34
tr	Q79DB7	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	145	2e-34
tr	Q6V2W1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	145	2e-34
tr	Q57381	_SALEN Phase-1 flagellin [fliC1] [Salmonella enteritidis]	145	2e-34
tr	Q6V2U9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	145	2e-34
tr	Q53993	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	144	3e-34
sp	O52959	FLIC_SALNA Phase-1 flagellin [fliC] [Salmonella naestved]	143	7e-34
sp	Q06971	FLIC_SALDU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	143	7e-34
tr	Q6V2V3	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	143	7e-34
tr	Q66PR3	_SALDU Phase 1 flagellin [fliC] [Salmonella dublin]	143	7e-34
tr	Q6V2V2	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	143	7e-34
tr	Q66PR5	_SALNA Phase 1 flagellin [fliC] [Salmonella naestved]	143	7e-34
sp	Q06981	FLIC_SALMC Flagellin (Phase-1-D flagellin) [fliC] [Sal...	143	9e-34
tr	Q66PR2	_SALMC Phase 1 flagellin [fliC] [Salmonella moscow]	143	9e-34
tr	Q6V2V0	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	143	9e-34
sp	Q06982	FLIC_SALRO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	142	2e-33
tr	Q66PR4	_SALRO Phase 1 flagellin [fliC] [Salmonella rostock]	142	2e-33
tr	Q6V2V1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	142	2e-33
tr	Q6V2V5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	141	3e-33
sp	Q06968	FLIC_SALBE Flagellin (Phase-1-I flagellin) [fliC] [Sal...	136	9e-32
tr	Q6V2H1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	136	9e-32
tr	Q53583	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	136	9e-32
sp	Q06970	FLIC_SALDE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	135	1e-31
tr	Q53991	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	135	1e-31
tr	Q6V2X1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	135	1e-31
tr	Q66PR8	_SALDE Phase 1 flagellin [fliC] [Salmonella derby]	135	1e-31
tr	Q6V2W8	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	135	1e-31
tr	Q66PS0	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	135	1e-31
tr	Q66PQ9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	135	1e-31
tr	Q66PQ8	_SALEE Phase 1 flagellin [fliC] [Salmonella enterica VI...	135	1e-31
tr	Q53996	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	135	1e-31
tr	Q6V2G9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	134	3e-31
tr	Q66PR9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	134	3e-31
tr	Q53990	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	134	3e-31
tr	Q53992	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	134	4e-31

tr	Q54489	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	133	1e-30
tr	Q6V2U0	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	133	1e-30
tr	Q66PR1	_SALSE Phase 1 flagellin [fliC] [Salmonella senftenberg]	132	2e-30
tr	Q54414	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	131	4e-30
sp	Q06983	FLIC_SALSE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	130	6e-30
sp	Q06969	FLIC_SALBU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	130	6e-30
tr	Q66PR0	_SALBU Phase 1 flagellin [fliC] [Salmonella budapest]	130	6e-30
tr	Q6V2X0	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	130	6e-30
tr	Q6V2U7	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	130	6e-30
tr	Q6V2U6	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	130	6e-30
tr	Q6LD27	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	130	6e-30
tr	Q53995	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	129	1e-29
tr	Q6V2V7	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	127	7e-29
tr	Q53994	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	125	2e-28
tr	Q6V2T7	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	124	4e-28
tr	Q6V2G8	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	124	6e-28
sp	Q06974	FLIC_SALON Flagellin (Phase-1-C flagellin) [fliC] [Sal...	123	8e-28
tr	Q6V2U1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	123	8e-28
tr	Q6LD24	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	123	8e-28
tr	Q54415	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	123	8e-28
tr	Q53821	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	123	8e-28
tr	Q6V2G7	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	122	2e-27
tr	Q6V2U4	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	122	2e-27
tr	Q6V2U3	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	121	3e-27
tr	Q54515	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	118	3e-26
tr	Q9R2V0	_SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	99	2e-20
tr	Q5G1R0	_SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	91	7e-18
tr	Q9R405	_SALGL Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	88	4e-17
tr	Q9R406	_SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	87	1e-16
tr	Q5G1Q9	_SALPU FliC (Fragment) [fliC] [Salmonella pullorum]	82	2e-15
tr	Q5G1Q8	_SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	75	3e-13
tr	Q5ECK7	_ECOLI FliC (Fragment) [fliC] [Escherichia coli]	43	0.002
tr	Q52R20	_ECOLI FliC (Fragment) [fliC] [Escherichia coli]	43	0.002
tr	Q842D4	_ECOLI FliC (Fragment) [Escherichia coli]	43	0.002
tr	Q5ECJ1	_ECOLI FliC (Fragment) [fliC] [Escherichia coli]	43	0.002
tr	Q5ECI9	_ECOLI FliC (Fragment) [fliC] [Escherichia coli]	43	0.002
tr	Q9R3Q8	_ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	43	0.002
tr	Q8GGI1	_ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	43	0.002
tr	Q6VMV6	_ECOLI Flagellin [fliC] [Escherichia coli]	43	0.002
tr	Q6VMU9	_ECOLI Flagellin [fliC] [Escherichia coli]	43	0.002
tr	Q5ZPZ4	_ECOLI Flagellin C (Fragment) [fliC] [Escherichia coli]	43	0.002
tr	Q8GGH8	_ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	41	0.005
tr	Q76DK5	_SALET Phase II flagellin [fljB] [Salmonella enterica s...	41	0.005
tr	Q6V2M6	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	40	0.015
tr	Q6V2M5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	40	0.015

☐ tr Q8GGI2 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli] 39 0.019

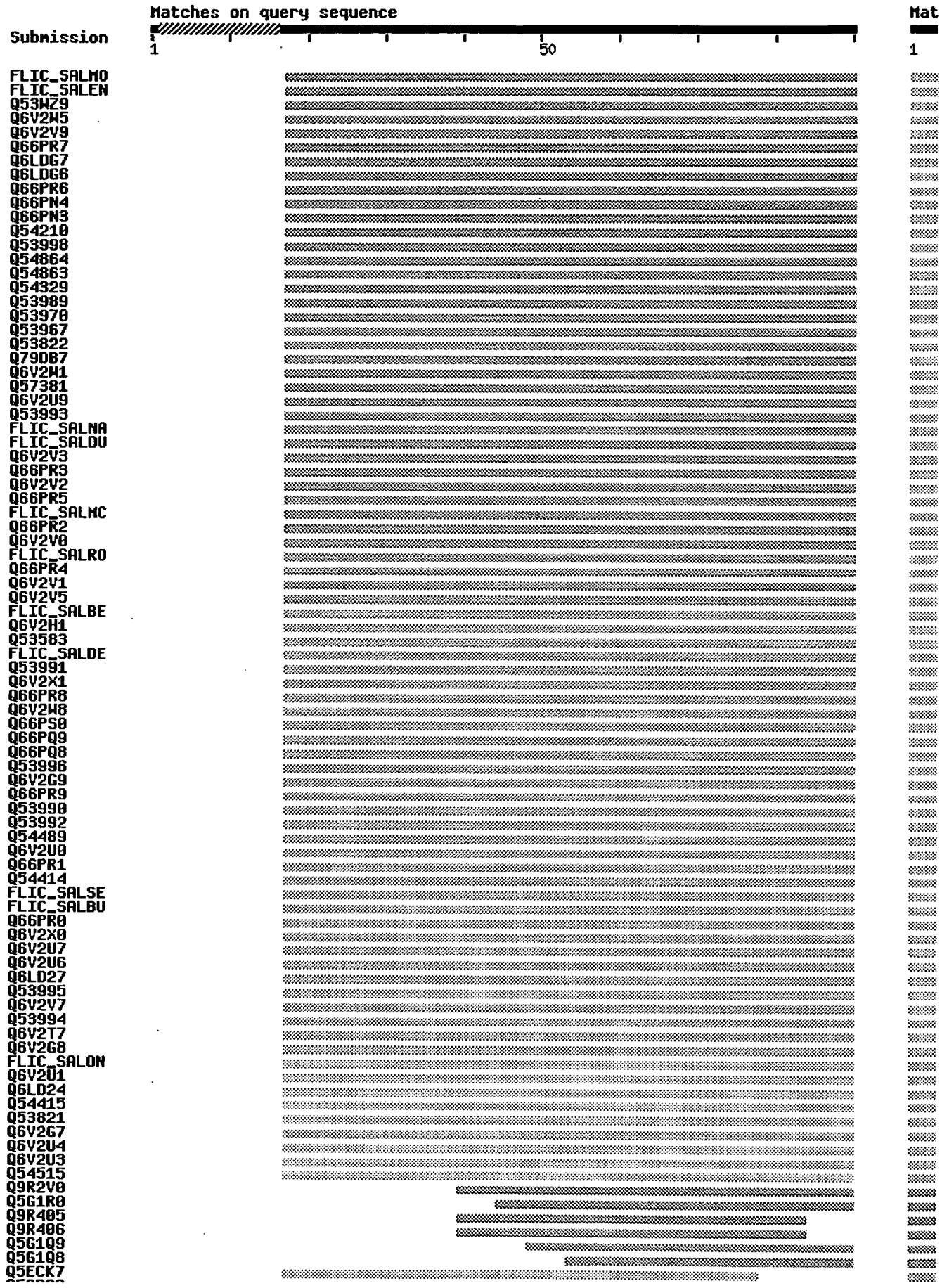
Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(? Help) (use ScanProsite for more details about PROSITE matches)

Profile hits

Pfam hits


Matches on query sequence
Mat
Submission
1
50
1
FLIC_SALMO
FLIC_SALEN
Q53WZ9
Q6V2W5
Q6V2V9
Q66PR7
Q6LDG7
Q6LDG6
Q66PR6
Q66PN4
Q66PN3
Q54210
Q53998
Q54864
Q54863
Q54329
Q53989
Q53970
Q53967
Q53822
Q79DB7
Q6V2W1
Q57381
Q6V2U9
Q53993
FLIC_SALNA
FLIC_SALDU
Q6V2V3
Q66PR3
Q6V2V2
Q66PR5
FLIC_SALMC
Q66PR2
Q6V2V0
FLIC_SALRO
Q66PR4
Q6V2V1
Q6V2V5
FLIC_SALBE
Q6V2H1
Q53583
FLIC_SALDE
Q53991
Q6V2X1
Q66PR8
Q6V2W8
Q66PS0
Q66PQ9
Q66PQ8
Q53996
Q6V2G9
Q66PR9
Q53990
Q53992
Q54489
Q6V2U0
Q66PR1
Q54414
FLIC_SALSE
FLIC_SALBU
Q66PR0
Q6V2X0
Q6V2U7
Q6V2U6
Q6LD27
Q53995
Q6V2V7
Q53994
Q6V2T7
Q6V2G8
FLIC_SALON
Q6V2U1
Q6LD24
Q54415
Q53821
Q6V2G7
Q6V2U4
Q6V2U3
Q54515
Q9R2V0
Q5G1R0
Q9R405
Q9R406
Q5G1Q9
Q5G1Q8
Q5ECK7

Alignments

sp Q06973 FLIC_SALMO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella montevideo]** 504 AA align

Score = 147 bits (372), Expect = 4e-35
Identities = 73/73 (100%), Positives = 73/73 (100%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 333 SVVNGQFTFDDKT 345
```

sp Q06972 FLIC_SALEN **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella enteritidis]** 504 AA align

Score = 147 bits (372), Expect = 4e-35
Identities = 73/73 (100%), Positives = 73/73 (100%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 333 SVVNGQFTFDDKT 345
```

tr Q53WZ9 Q53WZ9_SALEN **Phase 1 flagellin [fliC] [Salmonella enteritidis]** 505 AA align

Score = 147 bits (372), Expect = 4e-35
Identities = 73/73 (100%), Positives = 73/73 (100%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q6V2W5 Q6V2W5_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

```
 Score =  147 bits (372), Expect = 4e-35
 Identities = 73/73 (100%), Positives = 73/73 (100%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q6V2V9 Q6V2V9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

```
 Score =  147 bits (372), Expect = 4e-35
 Identities = 73/73 (100%), Positives = 73/73 (100%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q66PR7 Q66PR7_SALMO **Phase 1 flagellin [fliC] [Salmonella montevideo]** 505 AA align

```
 Score =  147 bits (372), Expect = 4e-35
 Identities = 73/73 (100%), Positives = 73/73 (100%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q6LDG7 Q6LDG7_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 505 AA align

```
 Score =  147 bits (372), Expect = 4e-35
 Identities = 73/73 (100%), Positives = 73/73 (100%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
```

```
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q6LDG6 Q6LDG6_SALET **Phase-1 flagellin [fliC1] [Salmonella enterica subsp. enterica serovar Gallinarum/pullorum]** 505 AA align

```
 Score =  147 bits (372), Expect = 4e-35
 Identities = 73/73 (100%), Positives = 73/73 (100%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q66PR6 Q66PR6_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

```
 Score =  147 bits (372), Expect = 4e-35
 Identities = 73/73 (100%), Positives = 73/73 (100%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q66PN4 Q66PN4_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Emek]** 505 AA align

```
 Score =  147 bits (372), Expect = 4e-35
 Identities = 73/73 (100%), Positives = 73/73 (100%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q66PN3 Q66PN3_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

Score = 147 bits (372), Expect = 4e-35
Identities = 73/73 (100%), Positives = 73/73 (100%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q54210 Q54210_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 494 AA align

Score = 147 bits (372), Expect = 4e-35
Identities = 73/73 (100%), Positives = 73/73 (100%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q53998 Q53998_SALEN **Phase-1 flagellin (Fragment) [fliC] [Salmonella enteritidis]** 493 AA align

Score = 147 bits (372), Expect = 4e-35
Identities = 73/73 (100%), Positives = 73/73 (100%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 262 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 321

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 322 SVVNGQFTFDDKT 334
```

tr Q54864 Q54864_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

Score = 146 bits (368), Expect = 1e-34
Identities = 72/73 (98%), Positives = 73/73 (99%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNG+FTFDDKT
Sbjct: 334 SVVNGKFTFDDKT 346
```

tr Q54863 Q54863_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

```
 Score =  146 bits (368), Expect = 1e-34
 Identities = 72/73 (98%), Positives = 73/73 (99%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNG+FTFDDKT
Sbjct: 334 SVVNGKFTFDDKT 346
```

tr Q54329 Q54329_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. jena]** 504 AA align

```
 Score =  145 bits (367), Expect = 1e-34
 Identities = 72/73 (98%), Positives = 73/73 (99%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 333 SVVNGQFTFDDKT 345
```

tr Q53989 Q53989_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Essen]** 504 AA align

```
 Score =  145 bits (367), Expect = 1e-34
 Identities = 72/73 (98%), Positives = 73/73 (99%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
```

```
Sbjct: 333 SVVNGQFTFDDKT 345
```

tr Q53970 Q53970_SALDU **Phase-1 flagellin [fliC1] [Salmonella dublin]** 505 AA align

```
 Score =  145 bits (367), Expect = 1e-34
 Identities = 72/73 (98%), Positives = 72/73 (98%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGA DVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGAADVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q53967 Q53967_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. danysz]** 465 AA align

```
 Score =  145 bits (367), Expect = 1e-34
 Identities = 72/73 (98%), Positives = 73/73 (99%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 333 SVVNGQFTFDDKT 345
```

tr Q53822 Q53822_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. chaco]** 504 AA align

```
 Score =  145 bits (367), Expect = 1e-34
 Identities = 72/73 (98%), Positives = 73/73 (99%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 333 SVVNGQFTFDDKT 345
```

tr Q79DB7 **Phase 1 flagellin [fliC] [Salmonella enterica subsp.** 505

Q79DB7_SALET **enterica serovar Othmarschen]** AA align

Score = 145 bits (366), Expect = 2e-34
Identities = 72/73 (98%), Positives = 72/73 (98%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAT ATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATSATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q6V2W1 Q6V2W1_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 145 bits (366), Expect = 2e-34
Identities = 72/73 (98%), Positives = 72/73 (98%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q57381 Q57381_SALEN **Phase-1 flagellin [fliC1] [Salmonella enteritidis]** 505 AA align

Score = 145 bits (366), Expect = 2e-34
Identities = 72/73 (98%), Positives = 72/73 (98%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAT ATDVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATSATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q6V2U9 Q6V2U9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 145 bits (365), Expect = 2e-34
Identities = 72/73 (98%), Positives = 72/73 (98%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT
```

```
Sbjct: 274 DTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q53993 Q53993_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA align

```
 Score =  144 bits (364), Expect = 3e-34
 Identities = 71/73 (97%), Positives = 72/73 (98%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGV+FTIDTKTGDDGNGKVSTTINGEKVTLTVADI TGATDVNAATLQSSKNVYT
Sbjct: 277 DTFDYKGVSFTIDTKTGDDGNGKVSTTINGEKVTLTVADITTGATDVNAATLQSSKNVYT 336

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 337 SVVNGQFTFDDKT 349
```

sp Q52959 FLIC_SALNA **Phase-1 flagellin [fliC] [Salmonella naestved]** 504 AA align

```
 Score =  143 bits (361), Expect = 7e-34
 Identities = 71/73 (97%), Positives = 71/73 (97%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 333 SVVNGQFTFDDKT 345
```

sp Q06971 FLIC_SALDU **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella dublin]** 504 AA align

```
 Score =  143 bits (361), Expect = 7e-34
 Identities = 71/73 (97%), Positives = 71/73 (97%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 333 SVVNGQFTFDDKT 345
```

tr Q6V2V3 **Phase 1 flagellin [fliC] [Salmonella** 505 AA
Q6V2V3_9ENTR **enterica]** align

Score = 143 bits (361), Expect = 7e-34
Identities = 71/73 (97%), Positives = 71/73 (97%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q66PR3 **Phase 1 flagellin [fliC] [Salmonella** 505 AA
Q66PR3_SALDU **dublin]** align

Score = 143 bits (361), Expect = 7e-34
Identities = 71/73 (97%), Positives = 71/73 (97%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q6V2V2 **Phase 1 flagellin [fliC] [Salmonella** 505 AA
Q6V2V2_9ENTR **enterica]** align

Score = 143 bits (361), Expect = 7e-34
Identities = 71/73 (97%), Positives = 71/73 (97%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q66PR5 **Phase 1 flagellin [fliC] [Salmonella** 505 AA
Q66PR5_SALNA **naestved]** align

Score = 143 bits (361), Expect = 7e-34
Identities = 71/73 (97%), Positives = 71/73 (97%)

```
Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKNVYT
```

```
Sbjct: 274 DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

sp Q06981 FLIC_SALMC **Flagellin (Phase-1-D flagellin) [fliC] [Salmonella moscow]** 504 AA

align

```
 Score =  143 bits (360), Expect = 9e-34
 Identities = 71/73 (97%), Positives = 72/73 (98%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKNVYT
Sbjct: 273 DTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKNVYT 332

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 333 SVVNGQFTFDDKT 345
```

tr Q66PR2 Q66PR2_SALMC **Phase 1 flagellin [fliC] [Salmonella moscow]** 505 AA

align

```
 Score =  143 bits (360), Expect = 9e-34
 Identities = 71/73 (97%), Positives = 72/73 (98%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

tr Q6V2V0 Q6V2V0_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA

align

```
 Score =  143 bits (360), Expect = 9e-34
 Identities = 71/73 (97%), Positives = 72/73 (98%)

Query: 18  DTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYT 77
           DTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKNVYT
Sbjct: 274 DTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKNVYT 333

Query: 78  SVVNGQFTFDDKT 90
           SVVNGQFTFDDKT
Sbjct: 334 SVVNGQFTFDDKT 346
```

UniProtKB/TrEMBL entry Q54414

Note: most headings are clickable, even if they don't appear as links. They link to the user manual or other documents.

Entry information

Entry name	**Q54414_SALET**
Primary accession number	**Q54414**
Secondary accession numbers	None
Entered in TrEMBL in	Release 01, November 1996
Sequence was last modified in	Release 01, November 1996
Annotations were last modified in	Release 24, June 2003

Name and origin of the protein

Protein name	**Phase-1 flagellin [Fragment]**
Synonyms	None
Gene name	**Name: fliC**
From	Salmonella enterica subsp. enterica serovar Marrtens [TaxID: 29479]
Taxonomy	Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae; Salmonella.

References

[1] NUCLEOTIDE SEQUENCE.
STRAIN=DIJK;
Masten B.J., Joys T.M.;
Submitted (JAN-1994) to the EMBL/GenBank/DDBJ databases.

Comments

None

Cross-references

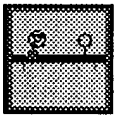
EMBL	U05301; AAA53496.1; -; Genomic_DNA.	[EMBL / GenBank / DDBJ] [CoDingSequence]
HSSP	P06179; 1UCU. [HSSP ENTRY / PDB]	
GO	GO:0009420; Cellular component: flagellar filament (sensu Bacteria) *(inferred from electronic annotation).*	
	GO:0005198; Molecular function: structural molecule activity *(inferred from electronic annotation).*	
	GO:0001539; Biological process: ciliary or flagellar motility *(inferred from electronic annotation).*	
	QuickGo view.	
	IPR001029; Flagellin_C.	

InterPro	IPR001492; Flagellin_N. Graphical view of domain structure.
Pfam	PF00700; Flagellin_C; 1. PF00669; Flagellin_N; 1. Pfam graphical view of domain structure.
PRINTS	PR00207; FLAGELLIN.
ProDom	PD000316; Flagellin_C; 1. [Domain structure / List of seq. sharing at least 1 domain]
HOGENOM	[Family / Alignment / Tree]
ProtoMap	Q54414.
PRESAGE	Q54414.
ModBase	Q54414.
SWISS-2DPAGE	Get region on 2D PAGE.
UniRef	View cluster of proteins with at least 50% / 90% identity.

Keywords

Flagellum.

Features

 Feature table viewer

Key	From	To	Length	Description
NON_TER	1	1		

Sequence information

Length: **503 AA** [This is the length of the partial sequence] Molecular weight: **52672 Da** [This is the MW of the partial sequence] CRC64: **5652466F0E613C46** [This is a checksum on the sequence]

```
        10         20         30         40         50         60
AQVINTNSLS LLTQNNLNKS QSALGTAIER LSSGLRINSA KDDAAGQAIA NRFTSNIKGL

        70         80         90        100        110        120
TQASRNANDG ISIAQTTEGA LNEINNNLQR VRELSVQATN GTNSDSDLKS IQDEIQQRLS

       130        140        150        160        170        180
EIDRVSNQTQ FNGVKVLSQD NQMKIQVGAN DGETITIDLQ KIDVKSLGLD GFNVNGPKEA

       190        200        210        220        230        240
TVGDLKSSFK NVTGYDTYTA GANTYRVDIN SGAVTDDAGT DKIYVNAANG QLTTDDAQNN

       250        260        270        280        290        300
TAVDLFKTTK SSAGTAESKA IAGAIKGGKE GDTFDYKGVS FTIDTKNGAD GNGTVSTMIN

       310        320        330        340        350        360
GEKVTLTVAD ITAGAADVNA ATLQSSKNVY TSVVNGQFTF DDKTKNESAK LSDLEANNAV

       370        380        390        400        410        420
KGESKITVNG AEYTANAEGD KVTLAGKTMF IDKTASGVST LINEDAAAAK KSTANPLASI

       430        440        450        460        470        480
DSALSKVDAV RSSLGAIQNR FDSAITNLGN TVNNLSSARS RIEDSDYATE VSNMSRAQIL
```

```
       490         500
QQAGTSVLAQ ANQVPQSVLS LLR
```

Q54414 in FASTA format

View entry in original UniProtKB/TrEMBL format
View entry in raw text format (no links)
Request for annotation of this UniProtKB/TrEMBL entry

BLAST submission on ExPASy/SIB or at NCBI (USA)

Sequence analysis tools: ProtParam, ProtScale, Compute pI/Mw, PeptideMass, PeptideCutter, Dotlet (Java)

ScanProsite, MotifScan

Submit a homology modeling request to SWISS-MODEL

NPSA Sequence analysis tools

WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Wednesday, July 06, 2005

Hide?	Set Name	Query	Hit Count
	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=AND		
☐	L1	STTINGEKVTL	0
☐	L2	STTINGEKVTL$	0
☐	L3	$STTINGEKVTL$	0

END OF SEARCH HISTORY

7. Document ID: US 20030232055 A1

L4: Entry 7 of 60 File: PGPB Dec 18, 2003

DOCUMENT-IDENTIFIER: US 20030232055 A1
TITLE: Innate immune system-directed vaccines

Detail Description Paragraph:
[0291] Full-length Salmonella typhimurium Flagellin and E coli Flagellin were cloned from the respective genomic DNAs and expressed as recombinant proteins in E coli. Flagellin was expressed alone, or as a fusion protein with antigenic epitopes from ovalbumin (SIINFEKL), tyrosinase-2 protein (TRP2) cloned from murine B16 cells, or the C-terminal fragment of I-E.alpha. protein, which contains the E.alpha. epitope. In addition, all of the recombinant proteins contained a C-terminal 6.times.-histidine repeat to aid in purification.

DERWENT-ACC-NO: 2004-517400
DERWENT-WEEK: 200474

TITLE: Salmonella antigen formulation useful for identifying SE-infected fowl and fowl inoculated with SE-attenuated vaccine, comprising Salmonella enteritidis flagellin 9 kDa polypeptide

Basic Abstract Text (1):
NOVELTY - Salmonella antigen formulation (I) comprising Salmonella enteritidis flagellin (SE FliC) 9 kDa polypeptide (II) or its composite, which is used as a marker antigen for identifying SE-infected animal and animal inoculated with SE-attenuated vaccine, where (II) is obtained from 53 kDa flagellin polypeptide of Salmonella sp., is new.

DERWENT-ACC-NO: 2004-517400
DERWENT-WEEK: 200474

TITLE: Salmonella antigen formulation useful for identifying SE-infected fowl and fowl inoculated with SE-attenuated vaccine, comprising Salmonella enteritidis flagellin 9 kDa polypeptide

INVENTOR: EKAWA, T; OHTA, H ; TOYATA, Y ; YAMAMOTO, S

PATENT-ASSIGNEE:

ASSIGNEE	CODE
CAF LAB INC	CAFCN

PRIORITY-DATA: 2002WO-JP13148 (December 16, 2002)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	AU 2002359984 A1	July 9, 2004		000	C07K014/255
☐	WO 2004055045 A1	July 1, 2004	J	036	C07K014/255

DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SI SK SL SZ TR TZ UG ZM ZW

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
AU2002359984A1	December 16, 2002	2002AU-0359984	
AU2002359984A1	December 16, 2002	2002WO-JP13148	
AU2002359984A1		WO2004055045	Based on
WO2004055045A1	December 16, 2002	2002WO-JP13148	

INT-CL (IPC): A61 K 39/00; A61 K 39/112; A61 P 31/04; C07 K 14/255; G01 N 33/53; G01 N 33/569

ABSTRACTED-PUB-NO: WO2004055045A
BASIC-ABSTRACT:

NOVELTY - Salmonella antigen formulation (I) comprising Salmonella enteritidis flagellin (SE FliC) 9 kDa polypeptide (II) or its composite, which is used as a marker antigen for identifying SE-infected animal and animal inoculated with SE-attenuated vaccine, where (II) is obtained from 53 kDa flagellin polypeptide of Salmonella sp., is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) kit (III) for detecting antibody with respect to Salmonella antigen, in fluid sample such as blood serum, egg yolk, body fluids or tissue extracts, by immunoenzymatic technique, comprising support material (I), various control blood serum, blood serum dilution liquid, conjugate dilution liquid and ortho phenylene-diamine dilution liquid; and

(2) Salmonella, preferably S.enteritidis sub-unit vaccine for protecting animal against infection of Salmonella, preferably S.enteritidis, comprising (II) as an antigen.

ACTIVITY - Antibacterial.

No supporting data is given.

MECHANISM OF ACTION - Vaccine (claimed)

USE - (I) is useful for identifying SE-infected animal and animal inoculated with SE-attenuated vaccine. (III) is useful for serologically identifying S.enteritidis infection in hen, and hen vaccinated with SE-attenuated vaccine (claimed). (I) is useful as serological marker, for serologically testing and SE-infected fowl and fowl inoculated with an SE-attenuated vaccine marked today.

ADVANTAGE - (I) enables preparation of SE subunit vaccine exhibiting low stress-responsivenes. (I) enables identification of the fowl inoculated with an SE-attenuated vaccine.

CHOSEN-DRAWING: Dwg.0/4

TITLE-TERMS: SALMONELLA ANTIGEN FORMULATION USEFUL IDENTIFY INFECT FOWL FOWL INOCULATE ATTENUATE VACCINE COMPRISE SALMONELLA FLAGELLIN POLYPEPTIDE

DERWENT-CLASS: B04 C06 D16 S03

CPI-CODES: B04-B04C1; B04-B04D4; B04-B04D5; B04-G07; B04-L04; B04-N03; B04-N08; B11-C07A4; B12-K04A4; B14-A01A8; B14-S11B; C04-B04C1; C04-B04D4; C04-B04D5; C04-G07; C04-L04; C04-N03; C04-N08; C11-C07A4; C12-K04A4; C14-A01A8; C14-S11B; D05-H07; D05-H09; D05-H11;

EPI-CODES: S03-E14H4;

CHEMICAL-CODES:

```
Chemical Indexing M1 *01*
    Fragmentation Code
    M423 M770 M781 M905 Q233
    Specfic Compounds
    A0CHOK A0CHOU

Chemical Indexing M6 *02*
    Fragmentation Code
    M905 P001 P220 Q233 R515 R521 R621 R622 R624 R630
    R635
```

SECONDARY-ACC-NO:
CPI Secondary Accession Numbers: C2004-190975
Non-CPI Secondary Accession Numbers: N2004-410005

DERWENT-ACC-NO: 2003-117767
DERWENT-WEEK: 200311

TITLE: Egg yolk antibody against salmonella

INVENTOR: KIM, J U

PATENT-ASSIGNEE: DAN BIOTECH (DANBN)

PRIORITY-DATA: 2000KR-0085807 (December 29, 2000)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	KR 2002056452 A	July 10, 2002		001	C07K016/02

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
KR2002056452A	December 29, 2000	2000KR-0085807	

INT-CL (IPC): C07 K 16/02

ABSTRACTED-PUB-NO: KR2002056452A
BASIC-ABSTRACT:

NOVELTY - An egg yolk antibody (IgY) against Salmonella including Salmonella choleresuis, Salmonella enteritidis, Salmonella typhimurium, Salmonella dubrin and Salmonella gallinarium, is new. It can be used for the prevention and treatment of Salmonella.

DETAILED DESCRIPTION - The egg yolk antibody (IgY) against Salmonella is characteristically isolated by injecting flagella protein or crude OMPs of Salmonella inducing diseases in livestock, into an animal then isolating an antibody from the egg of the animal, wherein Salmonella is at least one selected from the group consisting of Salmonella choleresuis, Salmonella enteritidis, Salmonella typhimurium, Salmonella dubrin and Salmonella gallinarium.

ABSTRACTED-PUB-NO: KR2002056452A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/10

DERWENT-CLASS: B04 D16
CPI-CODES: B04-G07; B14-A01A8; D05-H11;

DERWENT-ACC-NO: 2002-737817
DERWENT-WEEK: 200280

TITLE: Specific egg yolk antibody(igy) against salmonella

INVENTOR: KIM, J U

PATENT-ASSIGNEE: DAN BIOTECH (DANBN)

PRIORITY-DATA: 2000KR-0063411 (October 27, 2000)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	KR 2002032772 A	May 4, 2002		001	C07K016/02

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
KR2002032772A	October 27, 2000	2000KR-0063411	

INT-CL (IPC): C07 K 16/02

ABSTRACTED-PUB-NO: KR2002032772A
BASIC-ABSTRACT:

NOVELTY - Specific egg yolk antibody (immunoglobulin (Ig)Y) against Salmonella is provided, which can be effectively used in the prevention, treatment and diagnosis of Salmonella infection.

DETAILED DESCRIPTION - The specific IgY against Salmonella is prepared by introducing the flagella protein of Salmonella into an animal to induce immunization, and separating antibodies from the serum or egg yolk of the immunized animal, in which the Salmonella is Salmonella enteritidis or Salmonella typhimurium, the animal is a hen. The Salmonella antibody containing egg is obtained from an animal immunized with the flagella protein of Salmonella, in which the Salmonella is Salmonella enteritidis or Salmonella typhimurium, the animal is a hen.

ABSTRACTED-PUB-NO: KR2002032772A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/10

DERWENT-CLASS: B04 D16
CPI-CODES: B04-G07; B14-A01A8; D05-H11;

DERWENT-ACC-NO: 2001-071400
DERWENT-WEEK: 200279

TITLE: New method for the specific detection of Salmonella enteritidis infections of poultry comprises contacting a biological sample with antigenic fragments of S. enteritidis fimbrial and/or flagellin proteins

INVENTOR: KWANG, H; LIU, W ; LOH, K Y H ; LOW, S S

PATENT-ASSIGNEE: INST MOLECULAR AGROBIOLOGY (MOLEN)

PRIORITY-DATA: 1999WO-SG00061 (June 22, 1999)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	CN 1361828 A	July 31, 2002		000	C12Q001/10
☐	WO 200078995 A1	December 28, 2000	E	047	C12Q001/10
☐	AU 9948172 A	January 9, 2001		000	C12Q001/10

DESIGNATED-STATES: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
CN 1361828A	June 22, 1999	1999CN-0816757	
CN 1361828A	June 22, 1999	1999WO-SG00061	
WO 200078995A1	June 22, 1999	1999WO-SG00061	
AU 9948172A	June 22, 1999	1999AU-0048172	
AU 9948172A	June 22, 1999	1999WO-SG00061	
AU 9948172A		WO 200078995	Based on

INT-CL (IPC): C07 K 14/255; C12 Q 1/10

ABSTRACTED-PUB-NO: WO 200078995A
BASIC-ABSTRACT:

NOVELTY - A method for detecting Salmonella enteritidis in a biological sample obtained from poultry comprising contacting the sample with an antigenic fragment of S. enteritidis fimbrial or flagellin protein and detecting the formation of a complex, where the fragment specifically recognizes S. enteritidis antibodies, is new.

DETAILED DESCRIPTION - A method for detecting Salmonella enteritidis in a biological sample obtained from poultry comprises:

(a) contacting the sample with an antigenic fragment of S. enteritidis fimbrial or flagellin protein under conditions conducive to formation of an immunological complex between S. enteritidis antibodies and the fragment; and

(b) detecting the formation of a complex, where the fragment specifically recognizes S. enteritidis antibodies present in the sample and discriminates between S. enteritidis and other Salmonella spp.

INDEPENDENT CLAIMS are also included for the following:

(1) an isolated fragment of S. enteritidis fimbrial protein (I) having a fully defined 128 amino acid (aa) sequence (given in the specification), an antigenic fragment of (I) or (I) with a conservative amino acid substitution for at least one amino acid;

(2) an isolated fragment of S. enteritidis flagellin protein (II) having a fully defined 69, 40, 27 or 11 aa sequence (given in the specification), an antigenic fragment of (II) or (II) with a conservative amino acid substitution for at least one amino acid;

(3) a kit comprising:

(a) a fragment of S. enteritidis fimbrial or flagellin protein which specifically recognizes S. enteritidis antibodies present in a biological sample obtained from poultry suspected of being infected with S. enteritidis and which discriminates between antibodies from S. enteritidis and other Salmonella spp.;

(b) a detectable label;

(4) a kit comprising:

(a) a fragment of S. enteritidis fimbrial and flagellin protein, each of which specifically recognizes S. enteritidis antibodies present in a biological sample obtained from poultry suspected of being infected with S. enteritidis and which discriminates between antibodies from S. enteritidis and other Salmonella spp.; and

(b) a detectable label;

(5) a method for detecting Salmonella enteritidis in a biological sample obtained from poultry comprising:

(a) contacting a first portion of the sample with an antigenic fragment of S. enteritidis fimbrial protein under conditions conducive to formation of an immunological complex between S. enteritidis antibodies and the fragment;

(b) detecting the formation of a complex, where the fragment specifically recognizes S. enteritidis antibodies present in the sample and discriminates between S. enteritidis and other Salmonella spp.;

(c) contacting a second portion of the sample with an antigenic fragment of S. enteritidis flagella protein under conditions conducive to formation of an immunological complex between S. enteritidis antibodies and the fragment;

(d) detecting the formation of a complex, where the fragment specifically recognizes S. enteritidis antibodies present in the sample and discriminates between S. enteritidis and other Salmonella spp.

USE - The methods are useful for the specific detection of Salmonella enteritidis infections in biological samples derived from poultry.

ADVANTAGE - The antigenic fragments are specific to Salmonella enteritidis and enable specific detection of S. enteritidis even in the presence of other Salmonella spp.

ABSTRACTED-PUB-NO: WO 200078995A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/5

DERWENT-CLASS: B04 C07 D13 D16
CPI-CODES: B04-B04D4; B04-B04M; B04-C01; B04-F10A8; B04-G07; B04-N03A; B11-C07A; B12-K04A4; C04-B04D4; C04-B04M; C04-C01; C04-F10A8; C04-G07; C04-N03A; C11-C07A; C12-K04A4; D03-M; D05-H04; D05-H11;

==========

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 145 AA (of which 23% low-complexity regions filtered out)
Date run: 2005-07-06 11:24:09 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

SEQ 2
21-165

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to

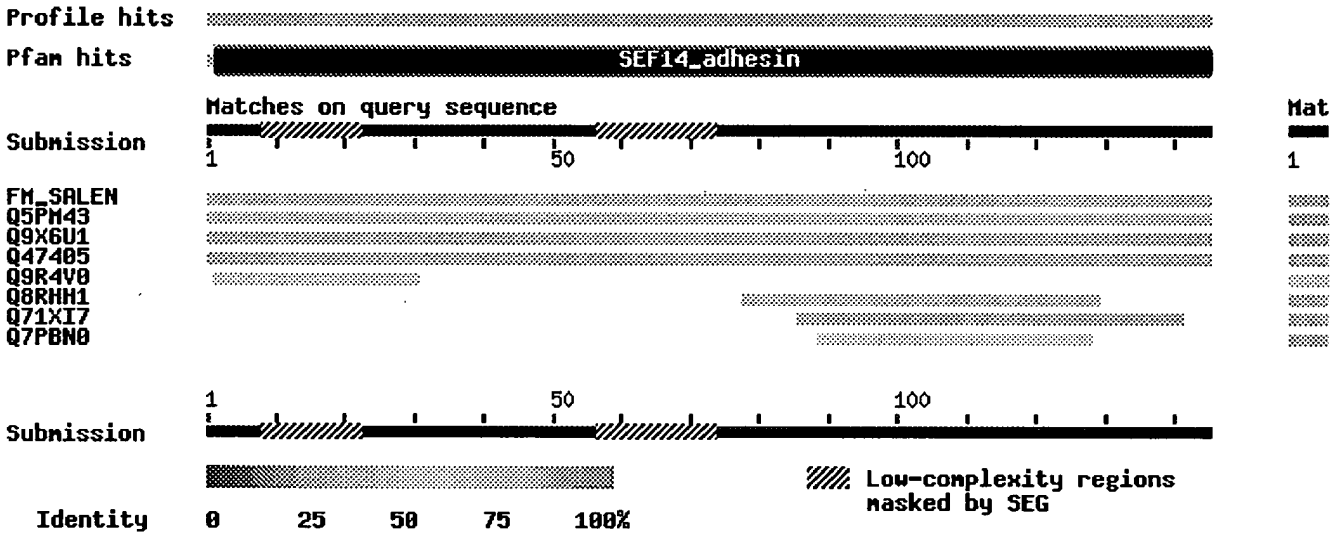
☐ Include query sequence

	Db	AC	Description	Score	E-value
☐	sp	P12061	FM_SALEN Fimbrial protein precursor [sefA] [Salmonella...	226	9e-59
☐	tr	Q5PM43	_SALPA Fimbrial structural protein [sefA] [Salmonella p...	216	7e-56
☐	tr	Q9X6U1	_ECOLI CS22 adhesin protein [cseA] [Escherichia coli]	87	6e-17
☐	tr	Q47405	_ECOLI Antigen 8786 [nfaA] [Escherichia coli]	82	2e-15
☐	tr	Q9R4V0	_SALEN Fimbrial protein SEF14 (Fragment) [Salmonella en...	33	1.1
☐	tr	Q8RHH1	_FUSNN Fusobacterium outer membrane protein family [FN2...	31	5.3
☐	tr	Q71XI7	_LISMF Cell wall surface anchor family protein [LMOf236...	30	6.9
☐	tr	Q7PBN0	_RICSI Hypothetical protein [rsib_orf.185] [Rickettsia ...	30	9.0

Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(Help) (use ScanProsite for more details about PROSITE matches)



Alignments

sp P12061 FM_SALEN **Fimbrial protein precursor [sefA] [Salmonella enteritidis]** 165 AA

align

Score = 226 bits (575), Expect = 9e-59
Identities = 112/145 (77%), Positives = 112/145 (77%)

```
Query: 1   AAGFVGNKXXXXXXXXXXXXXXXSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXX 60
           AAGFVGNK               SANWSQDPGFTGPAVAAGQKVGTLSITATGPHN
Sbjct: 21  AAGFVGNKAVVQAAVTIAAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNSVSI 80

Query: 61  XXXXXXXXXXXXXXPFVDGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVP 120
                        PFVDGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVP
Sbjct: 81  AGKGASVSGGVATVPFVDGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVP 140

Query: 121 VTTFGKSTLPAGTFTATFYVQQYQN 145
           VTTFGKSTLPAGTFTATFYVQQYQN
Sbjct: 141 VTTFGKSTLPAGTFTATFYVQQYQN 165
```

tr Q5PM43 Q5PM43_SALPA **Fimbrial structural protein [sefA] [Salmonella paratyphi-a]** 165 AA

align

Score = 216 bits (550), Expect = 7e-56
Identities = 107/145 (73%), Positives = 108/145 (73%)

```
Query: 1   AAGFVGNKXXXXXXXXXXXXXXXSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXX 60
           AAGFVGNK                SANWSQDPGFTGPAVAAGQKVGTLSITATGPHN
Sbjct: 21  AAGFVGNKAEVQAAVTIAAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNSVSI 80

Query: 61  XXXXXXXXXXXXXXPFVDGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVP 120
                        PFVDGQGQPVFRGRIQ ANINDQ NTGIDG AGWRVASSQETLNVP
Sbjct: 81  AGKGASVSGGVATVPFVDGQGQPVFRGRIQRANINDQVNTGIDGFAGWRVASSQETLNVP 140

Query: 121 VTTFGKSTLPAGTFTATFYVQQYQN 145
           VTTFG+STLPAG FTATFYVQQYQN
Sbjct: 141 VTTFGESTLPAGAFTATFYVQQYQN 165
```

tr Q9X6U1 Q9X6U1_ECOLI **CS22 adhesin protein [cseA] [Escherichia coli]** 166 AA align

```
 Score = 87.0 bits (214), Expect = 6e-17
 Identities = 52/148 (35%), Positives = 74/148 (49%), Gaps = 4/148 (2%)

Query: 1   AAGFVGNKXXXXXXXXXXXXXXXSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXX 60
           AA  VG+                 +A W+QDP  +G +V A QK+GTL+I  TG H
Sbjct: 20  AATVVGDVATVQAPVVFSAQNTINATWTQDPSVSGSSVQAMQKLGTLNIQLTGSHAGVYV 79

Query: 61  XXXXXXXXXXXXXXPFVDGQGQPVFRGRIQGANINDQANTGIDGLA--GWRVASSQETLN 118
                        PF +  GQ  FRGR   A+I    +NT I G +  GW +  +   ++
Sbjct: 80  SGDGTGVSGGLVTIPFKNAAGQIPFRGR-TNADIGQASNTLIAGHSGPGWNLPDAGNNIS 138

Query: 119 VPVTTFGKS-TLPAGTFTATFYVQQYQN 145
           + +  F K+  +PAGT+TATFY+QQYQ+
Sbjct: 139 LDIKAFQKNDNIPAGTYTATFYIQQYQS 166
```

tr Q47405 Q47405_ECOLI **Antigen 8786 [nfaA] [Escherichia coli]** 166 AA align

```
 Score = 82.4 bits (202), Expect = 2e-15
 Identities = 50/148 (33%), Positives = 70/148 (46%), Gaps = 4/148 (2%)

Query: 1   AAGFVGNKXXXXXXXXXXXXXXXSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXX 60
           AA  VG+                 +A W+QD   +G +V A QK+GTL+I  TG H
Sbjct: 20  AATAVGDVATVRAPLVFSAQNTINATWTQDSSVSGSSVTAMQKLGTLNIRLTGSHAGVYV 79

Query: 61  XXXXXXXXXXXXXXPFVDGQGQPVFRGRIQGANINDQANTGIDGLA--GWRVASSQETLN 118
                        PF +  GQ +FRGR   A I     T I G +  GW +  +Q+  N
Sbjct: 80  SGDDTGESGGLITIPFKNTAGQVLFRGR-TNAEIGQAMTTPIVGHSGPGWHLPGTQDNFN 138

Query: 119 VPVTTF-GKSTLPAGTFTATFYVQQYQN 145
           + +  F   + +PAG +TATFY+QQYQ+
Sbjct: 139 LDIRAFQNANNIPAGEYTATFYIQQYQS 166
```

tr Q9R4V0 Q9R4V0_SALEN **Fimbrial protein SEF14 (Fragment) [Salmonella enteritidis]** 30 AA

align

Score = 33.1 bits (74), Expect = 1.1
Identities = 14/30 (46%), Positives = 15/30 (49%)

```
Query: 2  AGFVGNKXXXXXXXXXXXXXXXSANWSQDP 31
          AGFVGNK               SANW+QDP
Sbjct: 1  AGFVGNKAEVQAAVTIAAQNTTSANWNQDP 30
```

tr Q8RHH1 Q8RHH1_FUSNN **Fusobacterium outer membrane protein family [FN2058] [Fusobacterium nucleatum (subsp. nucleatum)]** 1794 AA align

Score = 30.8 bits (68), Expect = 5.3
Identities = 19/52 (36%), Positives = 26/52 (49%)

```
Query: 78   DGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKSTL 129
            DGQG  +  G I   N + +A   I+G AG       +TL+VP     KST+
Sbjct: 1227 DGQGTNLGAGNIDVQNGSAEATKNIEGTAGGDKRFGDKTLSVPKGGRTKSTI 1278
```

tr Q71XI7 Q71XI7_LISMF **Cell wall surface anchor family protein [LMOf2365_2211] [Listeria monocytogenes (serotype 4b / strain F2365)]** 1697 AA align

Score = 30.4 bits (67), Expect = 6.9
Identities = 17/57 (29%), Positives = 29/57 (50%), Gaps = 1/57 (1%)

```
Query: 86  RGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKS-TLPAGTFTATFYVQ 141
           R ++   NI D+ +TG+  L  + V +  + +N  + T GK  T+       A FY+Q
Sbjct: 589 RIKMGNLNITDEFSTGVKALKSYTVRAYTDNINSVLLTEGKDYTIDKDVTPAGFYIQ 645
```

tr Q7PBN0 Q7PBN0_RICSI **Hypothetical protein [rsib_orf.185] [Rickettsia sibirica]** 149 AA align

Score = 30.0 bits (66), Expect = 9.0
Identities = 22/45 (48%), Positives = 27/45 (59%), Gaps = 12/45 (26%)

```
Query: 89  IQGANINDQANT-----GIDGLAGWRVASSQETLNVPVTTFGKST 128
           +Q ANIN Q+NT       ID       +ASSQE L+   TTFGKS+
Sbjct: 89  VQQANINPQSNTVSRSSSIDS----GIASSQEELS---TTFGKSS 126
```

Database: EXPASY/UniProtKB
Posted date: Jul 4, 2005 6:23 AM
Number of letters in database: 659,769,346
Number of sequences in database: 2,035,690

Lambda	K	H
0.314	0.132	0.398

```
Gapped
Lambda      K       H
   0.267   0.0410    0.140


Matrix: BLOSUM62
Gap Penalties: Existence: 11, Extension: 1
length of query: 145
length of database: 659,769,346
effective HSP length: 121
effective length of query: 24
effective length of database: 413,450,856
effective search space: 9922820544
effective search space used: 9922820544
T: 11
A: 40
X1: 16 ( 7.2 bits)
X2: 38 (14.6 bits)
X3: 64 (24.7 bits)
S1: 42 (21.9 bits)
S2: 66 (30.0 bits)

Wallclock time: 2 seconds
```

ExPASy Home page Site Map Search ExPASy Contact us Proteomics tools Swiss-Prot

PileUp

MSF: 165 Type: P Check: 6009 ..

Name: sp|P12061|FM_SALEN oo Len: 165 Check: 5260 Weight: 0.100
Name: tr|Q5PM43|Q5PM43_SALPA oo Len: 165 Check: 4769 Weight: 0.100
Name: tr|Q9R4V0|Q9R4V0_SALEN oo Len: 165 Check: 5980 Weight: 0.100

//

" 21-165 of SBQ2

```
sp|P12061|FM_SALEN          MRKSASAVAV LALIACGSAH AAGFVGNKAV VQAAVTIAAQ NTTSANWSQD
tr|Q5PM43|Q5PM43_SALPA      MRKSASAVAV LALIACGSAY AAGFVGNKAE VQAAVTIAAQ NTTSANWSQD
tr|Q9R4V0|Q9R4V0_SALEN      .......... .......... .AGFVGNKAE VQAAVTIAAQ NTTSANWNQD

sp|P12061|FM_SALEN          PGFTGPAVAA GQKVGTLSIT ATGPHNSVSI AGKGASVSGG VATVPFVDGQ
tr|Q5PM43|Q5PM43_SALPA      PGFTGPAVAA GQKVGTLSIT ATGPHNSVSI AGKGASVSGG VATVPFVDGQ
tr|Q9R4V0|Q9R4V0_SALEN      P......... .......... .......... .......... ..........

sp|P12061|FM_SALEN          GQPVFRGRIQ GANINDQANT GIDGLAGWRV ASSQETLNVP VTTFGKSTLP
tr|Q5PM43|Q5PM43_SALPA      GQPVFRGRIQ RANINDQVNT GIDGFAGWRV ASSQETLNVP VTTFGESTLP
tr|Q9R4V0|Q9R4V0_SALEN      .......... .......... .......... .......... ..........

sp|P12061|FM_SALEN          AGTFTATFYV QQYQN
tr|Q5PM43|Q5PM43_SALPA      AGAFTATFYV QQYQN
tr|Q9R4V0|Q9R4V0_SALEN      .......... .....
```

CLUSTAL W (1.74) multiple sequence alignment

```
sp|P12061|FM_SALEN          MRKSASAVAVLALIACGSAHAAGFVGNKAVVQAAVTIAAQNTTSANWSQD
tr|Q5PM43|Q5PM43_SALPA      MRKSASAVAVLALIACGSAYAAGFVGNKAEVQAAVTIAAQNTTSANWSQD
tr|Q9R4V0|Q9R4V0_SALEN      ----------------------AGFVGNKAEVQAAVTIAAQNTTSANWNQD
                                                    ******** ****************.**

sp|P12061|FM_SALEN          PGFTGPAVAAGQKVGTLSITATGPHNSVSIAGKGASVSGGVATVPFVDGQ
tr|Q5PM43|Q5PM43_SALPA      PGFTGPAVAAGQKVGTLSITATGPHNSVSIAGKGASVSGGVATVPFVDGQ
tr|Q9R4V0|Q9R4V0_SALEN      P--------------------------------------------------
                            *

sp|P12061|FM_SALEN          GQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKSTLP
tr|Q5PM43|Q5PM43_SALPA      GQPVFRGRIQRANINDQVNTGIDGFAGWRVASSQETLNVPVTTFGESTLP
tr|Q9R4V0|Q9R4V0_SALEN      --------------------------------------------------


sp|P12061|FM_SALEN          AGTFTATFYVQQYQN
tr|Q5PM43|Q5PM43_SALPA      AGAFTATFYVQQYQN
tr|Q9R4V0|Q9R4V0_SALEN      ---------------
```

SEQ ID 2

==========

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 128 AA (of which 14% low-complexity regions filtered out)
Date run: 2005-07-06 11:22:53 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to...

☐ Include query sequence

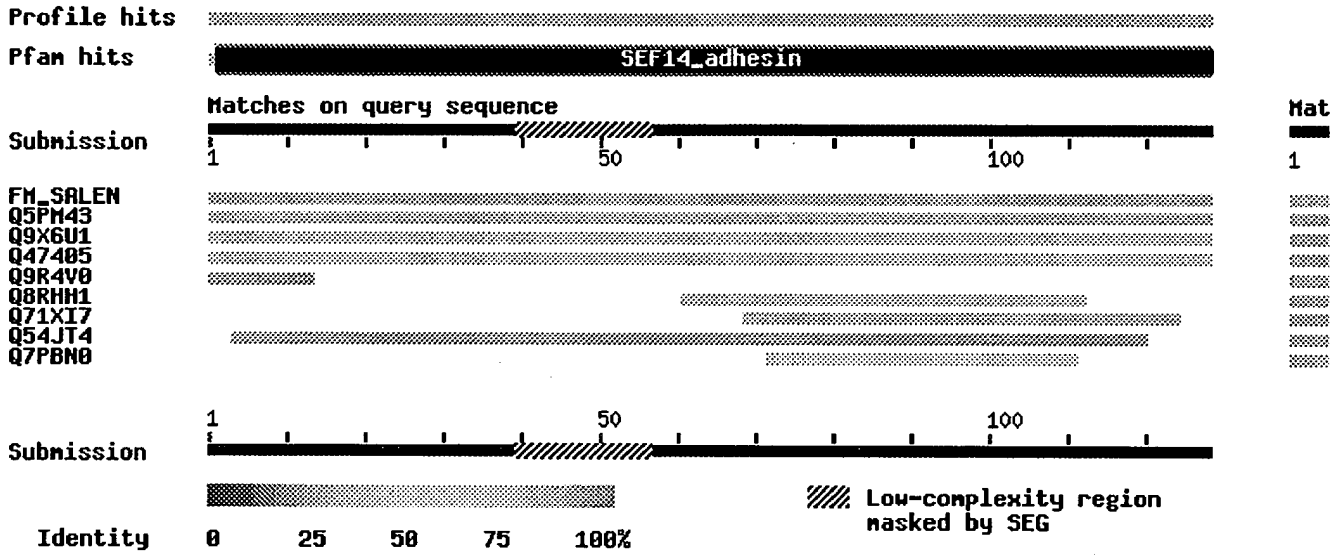
38-165 of SEQ 2 SEQ 3

	Db	AC	Description	Score	E-value
☐	sp	P12061	FM_SALEN Fimbrial protein precursor [sefA] [Salmonella...	224	4e-58
☐	tr	Q5PM43	_SALPA Fimbrial structural protein [sefA] [Salmonella p...	214	3e-55
☐	tr	Q9X6U1	_ECOLI CS22 adhesin protein [cseA] [Escherichia coli]	93	9e-19
☐	tr	Q47405	_ECOLI Antigen 8786 [nfaA] [Escherichia coli]	89	2e-17
☐	tr	Q9R4V0	_SALEN Fimbrial protein SEF14 (Fragment) [Salmonella en...	33	1.5
☐	tr	Q8RHH1	_FUSNN Fusobacterium outer membrane protein family [FN2...	31	5.7
☐	tr	Q71XI7	_LISMF Cell wall surface anchor family protein [LMOf236...	30	7.5
☐	tr	Q54JT4	_DICDI Hypothetical protein [DDB0215928] [Dictyostelium...	30	7.5
☐	tr	Q7PBN0	_RICSI Hypothetical protein [rsib_orf.185] [Rickettsia ...	30	9.8

Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(Help) (use ScanProsite for more details about PROSITE matches)



Alignments

sp P12061 FM_SALEN **Fimbrial protein precursor [sefA] [Salmonella enteritidis]** 165 AA

align

Score = 224 bits (570), Expect = 4e-58
Identities = 110/128 (85%), Positives = 110/128 (85%)

```
Query: 1   AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXXXXXXXXXXXXXXXPFV 60
           AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHN                 PFV
Sbjct: 38  AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNSVSIAGKGASVSGGVATVPFV 97

Query: 61  DGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKSTLPAGTFTAT 120
           DGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKSTLPAGTFTAT
Sbjct: 98  DGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKSTLPAGTFTAT 157

Query: 121 FYVQQYQN 128
           FYVQQYQN
Sbjct: 158 FYVQQYQN 165
```

tr Q5PM43 Q5PM43_SALPA **Fimbrial structural protein [sefA] [Salmonella paratyphi-a]** 165 AA

align

Score = 214 bits (545), Expect = 3e-55
Identities = 105/128 (82%), Positives = 106/128 (82%)

```
Query: 1   AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXXXXXXXXXXXXXXXXPFV 60
           AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHN                   PFV
Sbjct: 38  AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNSVSIAGKGASVSGGVATVPFV 97

Query: 61  DGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKSTLPAGTFTAT 120
           DGQGQPVFRGRIQ ANINDQ NTGIDG AGWRVASSQETLNVPVTTFG+STLPAG FTAT
Sbjct: 98  DGQGQPVFRGRIQRANINDQVNTGIDGFAGWRVASSQETLNVPVTTFGESTLPAGAFTAT 157

Query: 121 FYVQQYQN 128
           FYVQQYQN
Sbjct: 158 FYVQQYQN 165
```

tr Q9X6U1 Q9X6U1_ECOLI **CS22 adhesin protein [cseA] [Escherichia coli]** 166 AA align

Score = 93.2 bits (230), Expect = 9e-19
Identities = 52/131 (39%), Positives = 74/131 (55%), Gaps = 4/131 (3%)

```
Query: 1   AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXXXXXXXXXXXXXXXXPFV 60
           +AQNT +A W+QDP  +G +V A QK+GTL+I  TG H                   PF
Sbjct: 37  SAQNTINATWTQDPSVSGSSVQAMQKLGTLNIQLTGSHAGVYVSGDGTGVSGGLVTIPFK 96

Query: 61  DGQGQPVFRGRIQGANINDQANTGIDGLA--GWRVASSQETLNVPVTTFGKS-TLPAGTF 117
           +  GQ  FRGR   A+I   +NT I G +  GW +  +   +++ +  F K+  +PAGT+
Sbjct: 97  NAAGQIPFRGR-TNADIGQASNTLIAGHSGPGWNLPDAGNNISLDIKAFQKNDNIPAGTY 155

Query: 118 TATFYVQQYQN 128
           TATFY+QQYQ+
Sbjct: 156 TATFYIQQYQS 166
```

tr Q47405 Q47405_ECOLI **Antigen 8786 [nfaA] [Escherichia coli]** 166 AA align

Score = 89.0 bits (219), Expect = 2e-17
Identities = 50/131 (38%), Positives = 70/131 (53%), Gaps = 4/131 (3%)

```
Query: 1   AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXXXXXXXXXXXXXXXXPFV 60
           +AQNT +A W+QD   +G +V A QK+GTL+I  TG H                   PF
Sbjct: 37  SAQNTINATWTQDSSVSGSSVTAMQKLGTLNIRLTGSHAGVYVSGDDTGESGGLITIPFK 96

Query: 61  DGQGQPVFRGRIQGANINDQANTGIDGLA--GWRVASSQETLNVPVTTF-GKSTLPAGTF 117
           +  GQ +FRGR   A I     T I G +  GW +  +Q+  N+ +  F   + +PAG +
Sbjct: 97  NTAGQVLFRGR-TNAEIGQAMTTPIVGHSGPGWHLPGTQDNFNLDIRAFQNANNIPAGEY 155

Query: 118 TATFYVQQYQN 128
           TATFY+QQYQ+
Sbjct: 156 TATFYIQQYQS 166
```

tr Q9R4V0 **Fimbrial protein SEF14 (Fragment) [Salmonella** 30 AA

Q9R4V0_SALEN **enteritidis]**

align

Score = 32.7 bits (73), Expect = 1.5
Identities = 13/14 (92%), Positives = 14/14 (99%)

```
Query: 1  AAQNTTSANWSQDP 14
          AAQNTTSANW+QDP
Sbjct: 17 AAQNTTSANWNQDP 30
```

tr Q8RHH1 Q8RHH1_FUSNN **Fusobacterium outer membrane protein family [FN2058] [Fusobacterium nucleatum (subsp. nucleatum)]** 1794 AA align

Score = 30.8 bits (68), Expect = 5.7
Identities = 19/52 (36%), Positives = 26/52 (49%)

```
Query: 61   DGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKSTL 112
            DGQG  +  G I   N + +A   I+G AG       +TL+VP     KST+
Sbjct: 1227 DGQGTNLGAGNIDVQNGSAEATKNIEGTAGGDKRFGDKTLSVPKGGRTKSTI 1278
```

tr Q71XI7 Q71XI7_LISMF **Cell wall surface anchor family protein [LMOf2365_2211] [Listeria monocytogenes (serotype 4b / strain F2365)]** 1697 AA align

Score = 30.4 bits (67), Expect = 7.5
Identities = 17/57 (29%), Positives = 29/57 (50%), Gaps = 1/57 (1%)

```
Query: 69  RGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKS-TLPAGTFTATFYVQ 124
           R ++   NI D+ +TG+  L  + V +  + +N  + T GK  T+       A FY+Q
Sbjct: 589 RIKMGNLNITDEFSTGVKALKSYTVRAYTDNINSVLLTEGKDYTIDKDVTPAGFYIQ 645
```

tr Q54JT4 Q54JT4_DICDI **Hypothetical protein [DDB0215928] [Dictyostelium discoideum (Slime mold)]** 1929 AA align

Score = 30.4 bits (67), Expect = 7.5
Identities = 28/117 (23%), Positives = 41/117 (34%), Gaps = 17/117 (14%)

```
Query: 4   NTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNXXXXXXXXXXXXXXXXXXPFVDGQ 63
           +TT  + SQ  G +  A A+G +  + S TAT  +
Sbjct: 323 STTITSGSQSTGASTTATASGSQSTSASTTATASGSQSTGASTATTSGGST--------- 373

Query: 64  GQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVTTFGKSTLPAGTFTAT 120
               G I GA+    + T   G        SQ + +   TT G  T  +GT+T T
Sbjct: 374 ------GFISGASTTSMSTTTATG--SIPTTGSQTSTSGSYTTTGSQTSTSGTYTTT 422
```

tr	Q7PBN0 Q7PBN0_RICSI	**Hypothetical protein [rsib_orf.185] [Rickettsia sibirica]**	149 AA align

Score = 30.0 bits (66), Expect = 9.8
Identities = 22/45 (48%), Positives = 27/45 (59%), Gaps = 12/45 (26%)

```
Query: 72  IQGANINDQANT-----GIDGLAGWRVASSQETLNVPVTTFGKST 111
           +Q ANIN Q+NT      ID      +ASSQE L+   TTFGKS+
Sbjct: 89  VQQANINPQSNTVSRSSSIDS----GIASSQEELS---TTFGKSS 126
```

```
Database: EXPASY/UniProtKB
    Posted date:  Jul 4, 2005  6:23 AM
  Number of letters in database: 659,769,346
  Number of sequences in database:  2,035,690

Lambda     K      H
   0.313    0.129    0.387

Gapped
Lambda     K      H
   0.267   0.0410    0.140

Matrix: BLOSUM62
Gap Penalties: Existence: 11, Extension: 1
length of query: 128
length of database: 659,769,346
effective HSP length: 104
effective length of query: 24
effective length of database: 448,057,586
effective search space: 10753382064
effective search space used: 10753382064
T: 11
A: 40
X1: 16 ( 7.2 bits)
X2: 38 (14.6 bits)
X3: 64 (24.7 bits)
S1: 42 (21.9 bits)
S2: 66 (30.0 bits)

Wallclock time: 2 seconds
```

==========

Welcome to the SIB BLAST Network Service

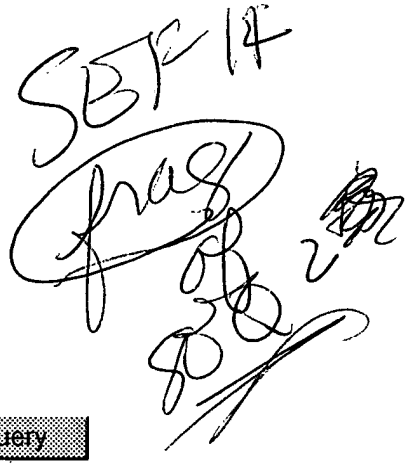
If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 30 AA
Date run: 2005-07-06 11:07:32 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries



Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to...

☐ Include query sequence

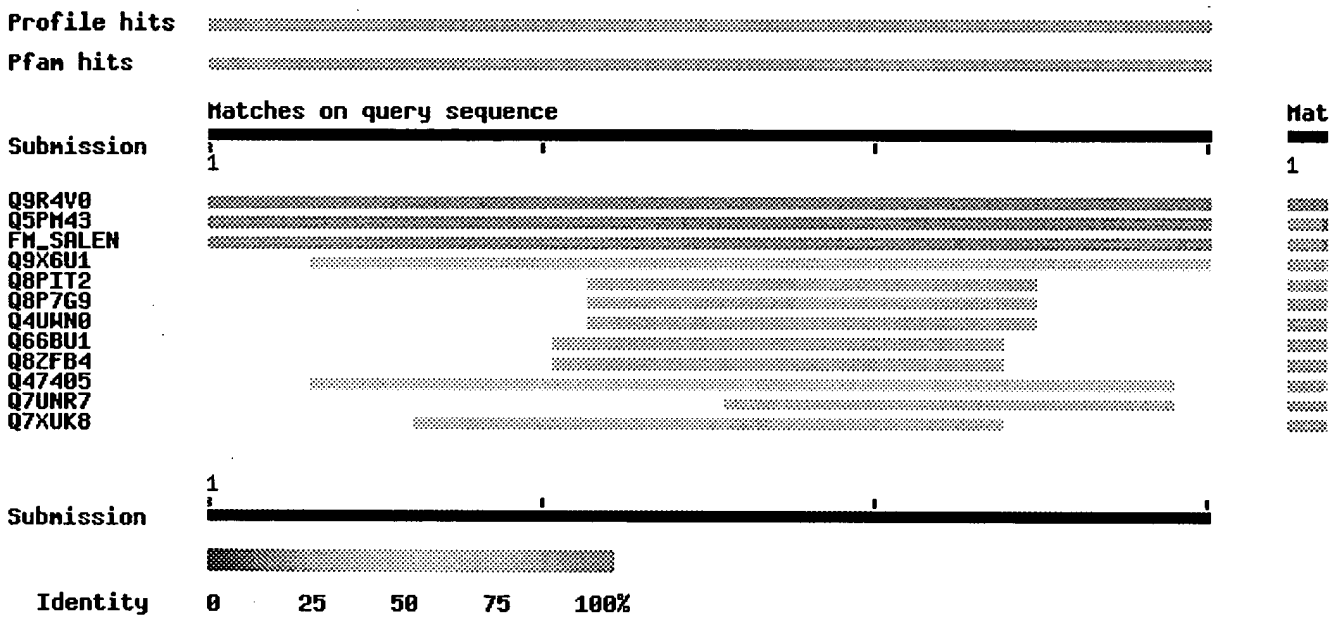
	Db	AC	Description	Score	E-value
☐	tr	Q9R4V0	_SALEN Fimbrial protein SEF14 (Fragment) [Salmonella en...	96	7e-20
☐	tr	Q5PM43	_SALPA Fimbrial structural protein [sefA] [Salmonella p...	93	7e-19
☐	sp	P12061	FM_SALEN Fimbrial protein precursor [sefA] [Salmonella...	87	4e-17
☐	tr	Q9X6U1	_ECOLI CS22 adhesin protein [cseA] [Escherichia coli]	43	8e-04
☐	tr	Q8PIT2	_XANAC ATP-dependent RNA helicase [deaD] [Xanthomonas a...	32	1.7
☐	tr	Q8P7G9	_XANCP ATP-dependent RNA helicase [deaD] [Xanthomonas c...	32	1.7
☐	tr	Q4UWN0	_XANCP ATP-dependent RNA helicase [XC_1475] [Xanthomona...	32	1.7
☐	tr	Q66BU1	_YERPS Flagellar basal-body rod protein FlgF [flgF] [Ye...	31	2.3
☐	tr	Q8ZFB4	_YERPE Flagellar basal-body rod protein FlgF (Cell-prox...	31	2.3

☐	tr Q47405 _ECOLI Antigen 8786 [nfaA] [Escherichia coli]	31	2.3
☐	tr Q7UNR7 _RHOBA Hypothetical protein [RB7418] [Rhodopirellula ba...	30	4.1
☐	tr Q7XUK8 _ORYSA OSJNBa0067K08.21 protein [OSJNBa0067K08.21] [Ory...	29	9.9

Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(Help) (use ScanProsite for more details about PROSITE matches)



Alignments

tr Q9R4V0 Q9R4V0_SALEN **Fimbrial protein SEF14 (Fragment) [Salmonella enteritidis]** 30 AA

align

Score = 96.1 bits (219), Expect = 7e-20
Identities = 30/30 (100%), Positives = 30/30 (100%)

```
Query: 1  AGFVGNKAEVQAAVTIAAQNTTSANWNQDP 30
          AGFVGNKAEVQAAVTIAAQNTTSANWNQDP
Sbjct: 1  AGFVGNKAEVQAAVTIAAQNTTSANWNQDP 30
```

tr Q5PM43 Q5PM43_SALPA **Fimbrial structural protein [sefA] [Salmonella paratyphi-a]** 165 AA

align

Score = 92.7 bits (211), Expect = 7e-19
Identities = 29/30 (96%), Positives = 29/30 (96%)

```
Query: 1  AGFVGNKAEVQAAVTIAAQNTTSANWNQDP 30
          AGFVGNKAEVQAAVTIAAQNTTSANW QDP
Sbjct: 22 AGFVGNKAEVQAAVTIAAQNTTSANWSQDP 51
```

sp P12061 FM_SALEN **Fimbrial protein precursor [sefA] [Salmonella enteritidis]** 165 AA

align

```
 Score = 86.7 bits (197), Expect = 4e-17
 Identities = 28/30 (93%), Positives = 28/30 (93%)

Query: 1  AGFVGNKAEVQAAVTIAAQNTTSANWNQDP 30
          AGFVGNKA VQAAVTIAAQNTTSANW QDP
Sbjct: 22 AGFVGNKAVVQAAVTIAAQNTTSANWSQDP 51
```

tr Q9X6U1 Q9X6U1_ECOLI **CS22 adhesin protein [cseA] [Escherichia coli]** 166 AA

align

```
 Score = 42.6 bits (93), Expect = 8e-04
 Identities = 16/27 (59%), Positives = 17/27 (62%)

Query: 4  VGNKAEVQAAVTIAAQNTTSANWNQDP 30
          VG+ A VQA V   AQNT  A W QDP
Sbjct: 24 VGDVATVQAPVVFSAQNTINATWTQDP 50
```

tr Q8PIT2 Q8PIT2_XANAC **ATP-dependent RNA helicase [deaD] [Xanthomonas axonopodis (pv. citri)]** 632 AA

align

```
 Score = 31.6 bits (67), Expect = 1.7
 Identities = 11/14 (78%), Positives = 11/14 (78%)

Query: 12  AAVTIAAQNTTSAN 25
           A VTIAA  TTSAN
Sbjct: 209 AEVTIAAKTTTSAN 222
```

tr Q8P7G9 Q8P7G9_XANCP **ATP-dependent RNA helicase [deaD] [Xanthomonas campestris (pv. campestris)]** 642 AA

align

```
 Score = 31.6 bits (67), Expect = 1.7
 Identities = 11/14 (78%), Positives = 11/14 (78%)

Query: 12  AAVTIAAQNTTSAN 25
           A VTIAA  TTSAN
Sbjct: 209 AEVTIAAKTTTSAN 222
```

tr Q4UWN0 Q4UWN0_XANCP **ATP-dependent RNA helicase [XC_1475] [Xanthomonas campestris pv. campestris str. 8004]** 642 AA align

Score = 31.6 bits (67), Expect = 1.7
Identities = 11/14 (78%), Positives = 11/14 (78%)

```
Query: 12  AAVTIAAQNTTSAN 25
           A VTIAA  TTSAN
Sbjct: 209 AEVTIAAKTTTSAN 222
```

tr Q66BU1 Q66BU1_YERPS **Flagellar basal-body rod protein FlgF [flgF] [Yersinia pseudotuberculosis]** 251 AA align

Score = 31.2 bits (66), Expect = 2.3
Identities = 11/14 (78%), Positives = 11/14 (78%)

```
Query: 11  QAAVTIAAQNTTSA 24
           QAAVTIAA  T SA
Sbjct: 132 QAAVTIAADGTISA 145
```

tr Q8ZFB4 Q8ZFB4_YERPE **Flagellar basal-body rod protein FlgF (Cell-proximal portion of basal-body rod protein) [flgF] [Yersinia pestis]** 209 AA align

Score = 31.2 bits (66), Expect = 2.3
Identities = 11/14 (78%), Positives = 11/14 (78%)

```
Query: 11  QAAVTIAAQNTTSA 24
           QAAVTIAA  T SA
Sbjct: 132 QAAVTIAADGTISA 145
```

tr Q47405 Q47405_ECOLI **Antigen 8786 [nfaA] [Escherichia coli]** 166 AA align

Score = 31.2 bits (66), Expect = 2.3
Identities = 13/26 (50%), Positives = 14/26 (53%)

```
Query: 4   VGNKAEVQAAVTIAAQNTTSANWNQD 29
           VG+ A V A     AQNT  A W QD
Sbjct: 24  VGDVATVRAPLVFSAQNTINATWTQD 49
```

tr Q7UNR7 Q7UNR7_RHOBA **Hypothetical protein [RB7418] [Rhodopirellula baltica]** 3507 AA

align

Score = 30.3 bits (64), Expect = 4.1
Identities = 10/14 (71%), Positives = 10/14 (71%), Gaps = 2/14 (14%)

```
Query: 16   IAAQNTTSANWNQD 29
            IAAQNTT   WN D
Sbjct: 3046 IAAQNTTT--WNAD 3057
```

tr Q7XUK8 Q7XUK8_ORYSA **OSJNBa0067K08.21 protein [OSJNBa0067K08.21] [Oryza sativa (japonica cultivar-group)]** 399 AA

align

Score = 29.1 bits (61), Expect = 9.9
Identities = 12/28 (42%), Positives = 14/28 (49%), Gaps = 10/28 (35%)

```
Query: 7   KAEVQAAVT----------IAAQNTTSA 24
           KAEV+AAV           IAA+  T A
Sbjct: 138 KAEVHAAVSVAGVAAALAAIAAESSTPA 165
```

```
Database: EXPASY/UniProtKB
    Posted date:  Jul 4, 2005  6:23 AM
  Number of letters in database: 659,769,346
  Number of sequences in database:  2,035,690

Lambda     K      H
   0.344    0.271     1.62

Gapped
Lambda     K      H
   0.294    0.110    0.610


Matrix: PAM30
Gap Penalties: Existence: 9, Extension: 1
length of query: 30
length of database: 659,769,346
effective HSP length: 21
effective length of query: 9
effective length of database: 617,019,856
effective search space: 5553178704
effective search space used: 5553178704
T: 16
A: 40
X1: 15 ( 7.4 bits)
X2: 35 (14.8 bits)
X3: 58 (24.6 bits)
S1: 40 (21.7 bits)
S2: 61 (29.1 bits)

Wallclock time: 134 seconds
```

UniProtKB/Swiss-Prot entry P12061

Note: most headings are clickable, even if they don't appear as links. They link to the user manual or other documents.

Entry information

Entry name	**FM_SALEN**
Primary accession number	**P12061**
Secondary accession numbers	None
Entered in Swiss-Prot in	Release 12, October 1989
Sequence was last modified in	Release 28, February 1994
Annotations were last modified in	Release 47, May 2005

Name and origin of the protein

Protein name	**Fimbrial protein [Precursor]**
Synonyms	None
Gene name	**Name: sefA** Synonyms: sef14
From	Salmonella enteritidis [TaxID: 592]
Taxonomy	Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae; Salmonella.

References

[1] NUCLEOTIDE SEQUENCE.
STRAIN=27655-3B;
PubMed=8097515 [NCBI, ExPASy, EBI, Israel, Japan]
Clouthier S.C., Mueller K.-H., Doran J.L., Collinson S.K., Kay W.W.;
"Characterization of three fimbrial genes, sefABC, of Salmonella enteritidis.";
J. Bacteriol. 175:2523-2533(1993).

[2] NUCLEOTIDE SEQUENCE.
PubMed=1701443 [NCBI, ExPASy, EBI, Israel, Japan]
Thorns C.J., Sojka M.G., Chasey D.C.;
"Detection of a novel fimbrial structure on the surface of Salmonella enteritidis by using a monoclonal antibody.";
J. Clin. Microbiol. 28:2409-2414(1990).

[3] NUCLEOTIDE SEQUENCE.
Ogunniyi A.D., Kotlarski I., Morona R., Manning P.A.;
Submitted (JUN-1996) to the EMBL/GenBank/DDBJ databases.

[4] PROTEIN SEQUENCE OF 22-85.
PubMed=2875990 [NCBI, ExPASy, EBI, Israel, Japan]
Feutrier J., Kay W.W., Trust T.J.;
"Purification and characterization of fimbriae from Salmonella enteritidis.";
J. Bacteriol. 168:221-227(1986).

Comments

- *FUNCTION*: Structural subunit of the sef14 fimbriae (S.enteritidis filamentous fimbriae).
- *SUBCELLULAR LOCATION*: Fimbria.

Copyright

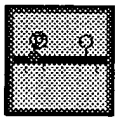
Cross-references

EMBL	L11008; AAA27219.1; -; Genomic_DNA.	[EMBL / GenBank / DDBJ] [CoDingSequence]
	L03833; AAA71892.1; -; Unassigned_DNA.	[EMBL / GenBank / DDBJ] [CoDingSequence]
	X98516; CAA67141.1; -; Genomic_DNA.	[EMBL / GenBank / DDBJ] [CoDingSequence]
PIR	A40618; A40618.	
PDB	1LUO; Model; A=1-165.[ExPASy / RCSB / EBI]	
InterPro	IPR010498; SEF14_adhesin. Graphical view of domain structure.	
Pfam	PF06443; SEF14_adhesin; 1. Pfam graphical view of domain structure.	
ProDom	[Domain structure / List of seq. sharing at least 1 domain]	
HOGENOM	[Family / Alignment / Tree]	
BLOCKS	P12061.	
ProtoNet	P12061.	
ProtoMap	P12061.	
PRESAGE	P12061.	
DIP	P12061.	
ModBase	P12061.	
SWISS-2DPAGE	Get region on 2D PAGE.	
UniRef	View cluster of proteins with at least 50% / 90% identity.	

Keywords

3D-structure; **Direct protein sequencing**; **Fimbria**; **Signal**.

Features


Feature table viewer

Key	From	To	Length	Description
SIGNAL	1	21	21	
CHAIN	22	165	144	Fimbrial protein.
CONFLICT	30	30		V -> E (in Ref. 2 and 3).
CONFLICT	84	85		GA -> QW (in Ref. 4).

Sequence information

Length: **165 AA** [This is the length of the unprocessed precursor]

Molecular weight: **16477 Da** [This is the MW of the unprocessed precursor]

CRC64: **5B33798A3F0F9091** [This is a checksum on the sequence]

```
        10         20         30         40         50         60
MRKSASAVAV LALIACGSAH AAGFVGNKAV VQAAVTIAAQ NTTSANWSQD PGFTGPAVAA

        70         80         90        100        110        120
GQKVGTLSIT ATGPHNSVSI AGKGASVSGG VATVPFVDGQ GQPVFRGRIQ GANINDQANT

       130        140        150        160
GIDGLAGWRV ASSQETLNVP VTTFGKSTLP AGTFTATFYV QQYQN
```

P12061 in FASTA format

View entry in original UniProtKB/Swiss-Prot format
View entry in raw text format (no links)
Report form for errors/updates in this UniProtKB/Swiss-Prot entry

BLAST submission on ExPASy/SIB or at NCBI (USA)

Sequence analysis tools: ProtParam, ProtScale, Compute pI/Mw, PeptideMass, PeptideCutter, Dotlet (Java)

ScanProsite, MotifScan

Submit a homology modeling request to SWISS-MODEL

NPSA Sequence analysis tools

==========

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 81 AA
Date run: 2005-07-06 11:55:34 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to...

☐ Include query sequence

	Db	AC	Description	Score	E-value
☐	sp	Q06973	FLIC_SALMO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	189	6e-48
☐	sp	Q06972	FLIC_SALEN Flagellin (Phase-1-C flagellin) [fliC] [Sal...	189	6e-48
☐	tr	Q53WZ9	_SALEN Phase 1 flagellin [fliC] [Salmonella enteritidis]	189	6e-48
☐	tr	Q6V2W5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	189	6e-48
☐	tr	Q6V2V9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	189	6e-48
☐	tr	Q66PR7	_SALMO Phase 1 flagellin [fliC] [Salmonella montevideo]	189	6e-48
☐	tr	Q6LDG7	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	189	6e-48
☐	tr	Q6LDG6	_SALET Phase-1 flagellin [fliC1] [Salmonella enterica s...	189	6e-48
☐	tr	Q66PR6	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	189	6e-48

☐	tr	Q66PN4	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	189 6e-48
☐	tr	Q66PN3	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	189 6e-48
☐	tr	Q54210	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	189 6e-48
☐	tr	Q53998	_SALEN Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	189 6e-48
☐	tr	Q54864	_SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	187 3e-47
☐	tr	Q54863	_SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	187 3e-47
☐	tr	Q54329	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	187 3e-47
☐	tr	Q53989	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	187 3e-47
☐	tr	Q53970	_SALDU Phase-1 flagellin [fliC1] [Salmonella dublin]	187 3e-47
☐	tr	Q53967	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	187 3e-47
☐	tr	Q53822	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	187 3e-47
☐	tr	Q6V2W1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	187 3e-47
☐	tr	Q79DB7	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	186 5e-47
☐	tr	Q57381	_SALEN Phase-1 flagellin [fliC1] [Salmonella enteritidis]	186 5e-47
☐	tr	Q6V2U9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	186 6e-47
☐	tr	Q53993	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	185 8e-47
☐	sp	Q06971	FLIC_SALDU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	184 2e-46
☐	tr	Q6V2V3	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	184 2e-46
☐	tr	Q66PR3	_SALDU Phase 1 flagellin [fliC] [Salmonella dublin]	184 2e-46
☐	tr	Q6V2V2	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	184 2e-46
☐	tr	Q66PR5	_SALNA Phase 1 flagellin [fliC] [Salmonella naestved]	184 2e-46
☐	sp	Q06981	FLIC_SALMC Flagellin (Phase-1-D flagellin) [fliC] [Sal...	184 3e-46
☐	tr	Q66PR2	_SALMC Phase 1 flagellin [fliC] [Salmonella moscow]	184 3e-46
☐	tr	Q6V2V0	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	184 3e-46
☐	sp	Q06982	FLIC_SALRO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	182 7e-46
☐	tr	Q66PR4	_SALRO Phase 1 flagellin [fliC] [Salmonella rostock]	182 7e-46
☐	tr	Q6V2V1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	182 7e-46
☐	sp	O52959	FLIC_SALNA Phase-1 flagellin [fliC] [Salmonella naestved]	182 9e-46
☐	tr	Q6V2V5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	182 9e-46
☐	sp	Q06968	FLIC_SALBE Flagellin (Phase-1-I flagellin) [fliC] [Sal...	176 4e-44
☐	tr	Q6V2H1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	176 4e-44
☐	tr	Q53583	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	176 4e-44
☐	sp	Q06970	FLIC_SALDE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	175 8e-44
☐	tr	Q6V2X1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	175 8e-44
☐	tr	Q66PR8	_SALDE Phase 1 flagellin [fliC] [Salmonella derby]	175 8e-44
☐	tr	Q6V2W8	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	175 8e-44
☐	tr	Q66PS0	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	175 8e-44
☐	tr	Q6V2G9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	174 2e-43
☐	tr	Q66PR9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	174 2e-43
☐	tr	Q53990	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	174 2e-43
☐	tr	Q53992	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	173 4e-43
☐	tr	Q53991	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	173 5e-43
☐	tr	Q66PQ9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	173 5e-43
☐	tr	Q66PQ8	_SALEE Phase 1 flagellin [fliC] [Salmonella enterica VI...	173 5e-43
☐	tr	Q53996	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	173 5e-43

☐	tr Q54489 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	172	7e-43
☐	tr Q6V2U0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	172	7e-43
☐	tr Q66PR1 _SALSE Phase 1 flagellin [fliC] [Salmonella senftenberg]	171	2e-42
☐	tr Q54414 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	170	3e-42
☐	sp Q06983 FLIC_SALSE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	169	7e-42
☐	sp Q06969 FLIC_SALBU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	169	7e-42
☐	tr Q66PR0 _SALBU Phase 1 flagellin [fliC] [Salmonella budapest]	169	7e-42
☐	tr Q6V2X0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	169	7e-42
☐	tr Q6V2U7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	169	7e-42
☐	tr Q6V2U6 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	169	7e-42
☐	tr Q6LD27 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	169	7e-42
☐	tr Q6V2V7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	166	8e-41
☐	tr Q53995 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	164	3e-40
☐	tr Q53994 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	163	3e-40
☐	tr Q6V2G8 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	162	9e-40
☐	tr Q6V2T7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	162	1e-39
☐	tr Q6V2G7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	160	4e-39
☐	sp Q06974 FLIC_SALON Flagellin (Phase-1-C flagellin) [fliC] [Sal...	156	8e-38
☐	tr Q6V2U1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	156	8e-38
☐	tr Q6LD24 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	156	8e-38
☐	tr Q54415 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	156	8e-38
☐	tr Q53821 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	156	8e-38
☐	tr Q6V2U4 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	154	2e-37
☐	tr Q6V2U3 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	154	2e-37
☐	tr Q54515 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	150	4e-36
☐	tr Q9R2V0 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	117	3e-26
☐	tr Q5G1R0 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	116	5e-26
☐	tr Q5G1Q9 _SALPU FliC (Fragment) [fliC] [Salmonella pullorum]	106	5e-23
☐	tr Q9R405 _SALGL Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	103	5e-22
☐	tr Q9R406 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	101	2e-21
☐	tr Q5G1Q8 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	99	1e-20
☐	tr Q8GGH8 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	48	3e-05
☐	tr Q5ECK7 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr Q52R20 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr Q842D4 _ECOLI FliC (Fragment) [Escherichia coli]	45	2e-04
☐	tr Q5ECJ1 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr Q5ECI9 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr Q9R3Q8 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr Q8GGI1 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr Q76DK5 _SALET Phase II flagellin [fljB] [Salmonella enterica s...	45	2e-04
☐	tr Q6VMV6 _ECOLI Flagellin [fliC] [Escherichia coli]	45	2e-04
☐	tr Q6VMU9 _ECOLI Flagellin [fliC] [Escherichia coli]	45	2e-04
☐	tr Q5ZPZ4 _ECOLI Flagellin C (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr Q8GGI2 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr Q842C3 _ECOLI FliC (Fragment) [Escherichia coli]	44	6e-04

☐ tr Q93ES4 _ECOLI Flagellin [Escherichia coli] 44 6e-04

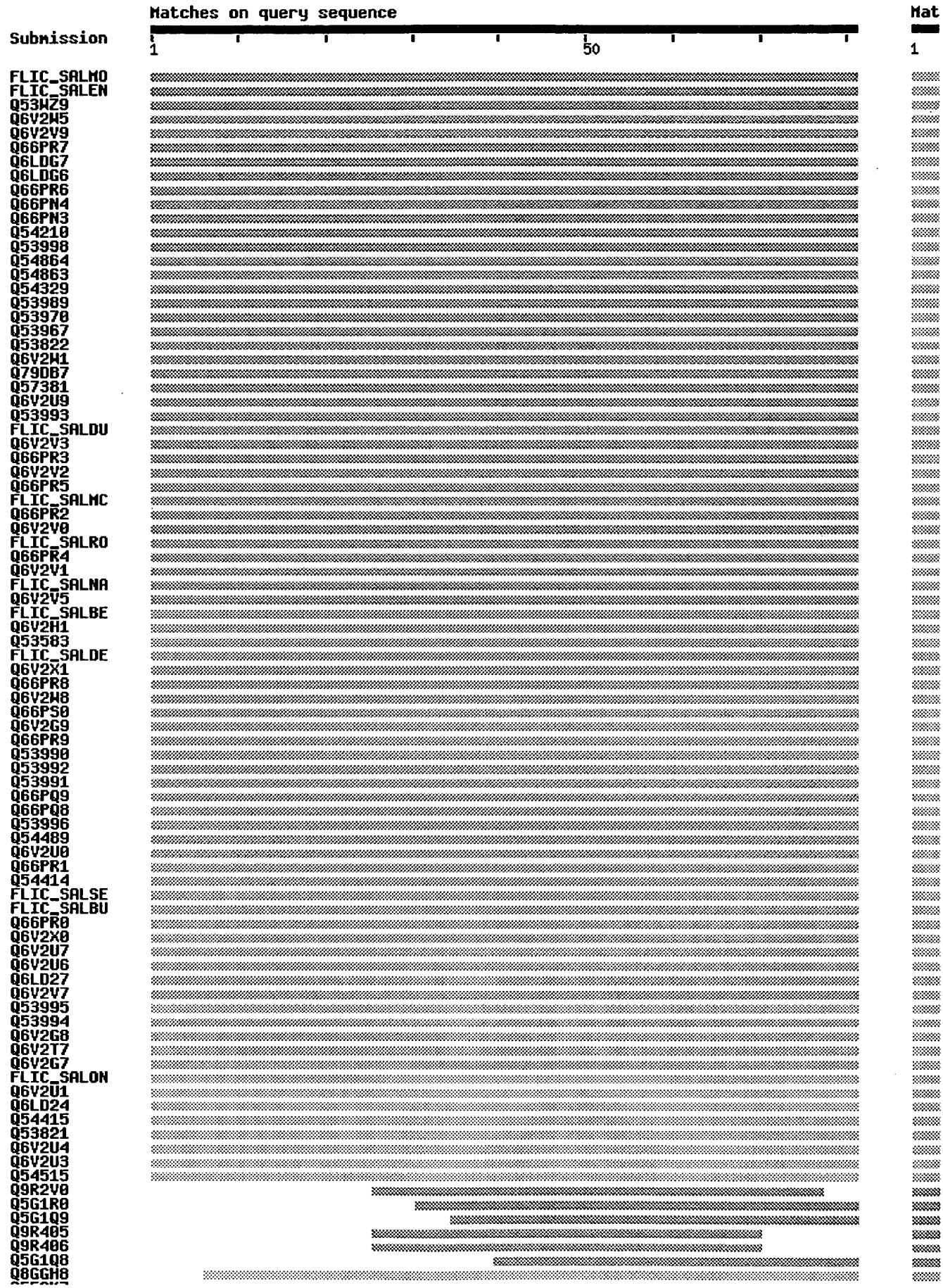
Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(? Help) (use ScanProsite for more details about PROSITE matches)

Profile hits

Pfam hits


Matches on query sequence
Mat
Submission
1
50
1
FLIC_SALMO
FLIC_SALEN
Q53WZ9
Q6V2W5
Q6V2V9
Q66PR7
Q6LDG7
Q6LDG6
Q66PR6
Q66PN4
Q66PN3
Q54210
Q53998
Q54864
Q54863
Q54329
Q53989
Q53970
Q53967
Q53822
Q6V2W1
Q79DB7
Q57381
Q6V2U9
Q53993
FLIC_SALDU
Q6V2V3
Q66PR3
Q6V2V2
Q66PR5
FLIC_SALMC
Q66PR2
Q6V2V0
FLIC_SALRO
Q66PR4
Q6V2V1
FLIC_SALNA
Q6V2V5
FLIC_SALBE
Q6V2H1
Q53583
FLIC_SALDE
Q6V2X1
Q66PR8
Q6V2W8
Q66PS0
Q6V2G9
Q66PR9
Q53990
Q53992
Q53991
Q66PQ9
Q66PQ8
Q53996
Q54489
Q6V2U0
Q66PR1
Q54414
FLIC_SALSE
FLIC_SALBU
Q66PR0
Q6V2X0
Q6V2U7
Q6V2U6
Q6LD27
Q6V2V7
Q53995
Q53994
Q6V2G8
Q6V2T7
Q6V2G7
FLIC_SALON
Q6V2U1
Q6LD24
Q54415
Q53821
Q6V2U4
Q6V2U3
Q54515
Q9R2V0
Q5G1R0
Q5G1Q9
Q9R405
Q9R406
Q5G1Q8
Q8GGH8

Alignments

sp Q06973 FLIC_SALMO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella montevideo]** 504 AA align

Score = 189 bits (431), Expect = 6e-48
Identities = 81/81 (100%), Positives = 81/81 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 330 VYTSVVNGQFTFDDKTKNESA 350
```

sp Q06972 FLIC_SALEN **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella enteritidis]** 504 AA align

Score = 189 bits (431), Expect = 6e-48
Identities = 81/81 (100%), Positives = 81/81 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 330 VYTSVVNGQFTFDDKTKNESA 350
```

tr Q53WZ9 Q53WZ9_SALEN **Phase 1 flagellin [fliC] [Salmonella enteritidis]** 505 AA align

Score = 189 bits (431), Expect = 6e-48
Identities = 81/81 (100%), Positives = 81/81 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q6V2W5 Q6V2W5_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

```
 Score =  189 bits (431), Expect = 6e-48
 Identities = 81/81 (100%), Positives = 81/81 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q6V2V9 Q6V2V9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

```
 Score =  189 bits (431), Expect = 6e-48
 Identities = 81/81 (100%), Positives = 81/81 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q66PR7 Q66PR7_SALMO **Phase 1 flagellin [fliC] [Salmonella montevideo]** 505 AA align

```
 Score =  189 bits (431), Expect = 6e-48
 Identities = 81/81 (100%), Positives = 81/81 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q6LDG7 Q6LDG7_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 505 AA align

```
 Score =  189 bits (431), Expect = 6e-48
 Identities = 81/81 (100%), Positives = 81/81 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
```

```
            VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q6LDG6 Q6LDG6_SALET **Phase-1 flagellin [fliC1] [Salmonella enterica subsp. enterica serovar Gallinarum/pullorum]** 505 AA align

```
 Score =  189 bits (431), Expect = 6e-48
 Identities = 81/81 (100%), Positives = 81/81 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q66PR6 Q66PR6_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

```
 Score =  189 bits (431), Expect = 6e-48
 Identities = 81/81 (100%), Positives = 81/81 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q66PN4 Q66PN4_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Emek]** 505 AA align

```
 Score =  189 bits (431), Expect = 6e-48
 Identities = 81/81 (100%), Positives = 81/81 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q66PN3 Q66PN3_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

Score = 189 bits (431), Expect = 6e-48
Identities = 81/81 (100%), Positives = 81/81 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q54210 Q54210_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 494 AA align

Score = 189 bits (431), Expect = 6e-48
Identities = 81/81 (100%), Positives = 81/81 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q53998 Q53998_SALEN **Phase-1 flagellin (Fragment) [fliC] [Salmonella enteritidis]** 493 AA align

Score = 189 bits (431), Expect = 6e-48
Identities = 81/81 (100%), Positives = 81/81 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 259 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 318

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 319 VYTSVVNGQFTFDDKTKNESA 339
```

tr Q54864 Q54864_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

Score = 187 bits (426), Expect = 3e-47
Identities = 80/81 (98%), Positives = 81/81 (99%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNG+FTFDDKTKNESA
Sbjct: 331 VYTSVVNGKFTFDDKTKNESA 351
```

tr Q54863 Q54863_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

```
 Score =  187 bits (426), Expect = 3e-47
 Identities = 80/81 (98%), Positives = 81/81 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNG+FTFDDKTKNESA
Sbjct: 331 VYTSVVNGKFTFDDKTKNESA 351
```

tr Q54329 Q54329_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. jena]** 504 AA align

```
 Score =  187 bits (426), Expect = 3e-47
 Identities = 80/81 (98%), Positives = 81/81 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 330 VYTSVVNGQFTFDDKTKNESA 350
```

tr Q53989 Q53989_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Essen]** 504 AA align

```
 Score =  187 bits (426), Expect = 3e-47
 Identities = 80/81 (98%), Positives = 81/81 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
```

```
Sbjct: 330 VYTSVVNGQFTFDDKTKNESA 350
```

tr Q53970 Q53970_SALDU **Phase-1 flagellin [fliC1] [Salmonella dublin]** 505 AA align

```
 Score =  187 bits (426), Expect = 3e-47
 Identities = 80/81 (98%), Positives = 80/81 (98%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q53967 Q53967_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. danysz]** 465 AA align

```
 Score =  187 bits (426), Expect = 3e-47
 Identities = 80/81 (98%), Positives = 81/81 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 330 VYTSVVNGQFTFDDKTKNESA 350
```

tr Q53822 Q53822_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. chaco]** 504 AA align

```
 Score =  187 bits (426), Expect = 3e-47
 Identities = 80/81 (98%), Positives = 81/81 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 330 VYTSVVNGQFTFDDKTKNESA 350
```

tr Q6V2W1 **Phase 1 flagellin [fliC] [Salmonella** 505 AA

Q6V2W1_9ENTR **enterica]** align

Score = 187 bits (425), Expect = 3e-47
Identities = 80/81 (98%), Positives = 80/81 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q79DB7 **Phase 1 flagellin [fliC] [Salmonella enterica subsp.** 505
Q79DB7_SALET **enterica** AA
serovar Othmarschen] align

Score = 186 bits (424), Expect = 5e-47
Identities = 80/81 (98%), Positives = 80/81 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAT ATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATSATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q57381 **Phase-1 flagellin [fliC1] [Salmonella** 505 AA
Q57381_SALEN **enteritidis]** align

Score = 186 bits (424), Expect = 5e-47
Identities = 80/81 (98%), Positives = 80/81 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAT ATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATSATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q6V2U9 **Phase 1 flagellin [fliC] [Salmonella** 505 AA
Q6V2U9_9ENTR **enterica]** align

Score = 186 bits (423), Expect = 6e-47
Identities = 80/81 (98%), Positives = 80/81 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
```

```
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q53993 Q53993_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA align

```
 Score =  185 bits (422), Expect = 8e-47
 Identities = 79/81 (97%), Positives = 80/81 (98%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGV+FTIDTKTGDDGNGKVSTTINGEKVTLTVADI TGATDVNAATLQSSKN
Sbjct: 274 KEGDTFDYKGVSFTIDTKTGDDGNGKVSTTINGEKVTLTVADITTGATDVNAATLQSSKN 333

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 334 VYTSVVNGQFTFDDKTKNESA 354


 Score = 31.4 bits (64), Expect = 2.5
 Identities = 17/39 (43%), Positives = 19/39 (48%), Gaps = 4/39 (10%)

Query: 42  DIATGA--TDVNAATLQSSKNVYTSVVNGQFTFDDKTKN 78
           DI +GA  TD  A T+      VY    NGQ T DD   N
Sbjct: 209 DINSGAVVTDATAPTV--PDKVYVNAANGQLTTDDAQNN 245
```

sp Q06971 FLIC_SALDU **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella dublin]** 504 AA align

```
 Score =  184 bits (420), Expect = 2e-46
 Identities = 79/81 (97%), Positives = 79/81 (97%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 329

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 330 VYTSVVNGQFTFDDKTKNESA 350
```

tr Q6V2V3 Q6V2V3_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

```
 Score =  184 bits (420), Expect = 2e-46
 Identities = 79/81 (97%), Positives = 79/81 (97%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
```

```
            KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q66PR3 Q66PR3_SALDU **Phase 1 flagellin [fliC] [Salmonella dublin]** 505 AA align

```
 Score =  184 bits (420), Expect = 2e-46
 Identities = 79/81 (97%), Positives = 79/81 (97%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q6V2V2 Q6V2V2_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

```
 Score =  184 bits (420), Expect = 2e-46
 Identities = 79/81 (97%), Positives = 79/81 (97%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q66PR5 Q66PR5_SALNA **Phase 1 flagellin [fliC] [Salmonella naestved]** 505 AA align

```
 Score =  184 bits (420), Expect = 2e-46
 Identities = 79/81 (97%), Positives = 79/81 (97%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

sp Q06981 FLIC_SALMC **Flagellin (Phase-1-D flagellin) [fliC] [Salmonella moscow]** 504 AA
align

Score = 184 bits (418), Expect = 3e-46
Identities = 79/81 (97%), Positives = 80/81 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKN 329

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 330 VYTSVVNGQFTFDDKTKNESA 350
```

tr Q66PR2 Q66PR2_SALMC **Phase 1 flagellin [fliC] [Salmonella moscow]** 505 AA
align

Score = 184 bits (418), Expect = 3e-46
Identities = 79/81 (97%), Positives = 80/81 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

tr Q6V2V0 Q6V2V0_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
align

Score = 184 bits (418), Expect = 3e-46
Identities = 79/81 (97%), Positives = 80/81 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKN 330

Query: 61  VYTSVVNGQFTFDDKTKNESA 81
           VYTSVVNGQFTFDDKTKNESA
Sbjct: 331 VYTSVVNGQFTFDDKTKNESA 351
```

sp Q06982 FLIC_SALRO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella rostock]** 504 AA
align

Score = 182 bits (415), Expect = 7e-46
Identities = 78/81 (96%), Positives = 78/81 (96%)

BBDP7

==========

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 40 AA
Date run: 2005-07-06 11:57:55 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to ...

☐ Include query sequence

	Db	AC	Description	Score	E-value
☐	sp	Q06973	FLIC_SALMO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	102	8e-22
☐	sp	Q06972	FLIC_SALEN Flagellin (Phase-1-C flagellin) [fliC] [Sal...	102	8e-22
☐	tr	Q53WZ9	_SALEN Phase 1 flagellin [fliC] [Salmonella enteritidis]	102	8e-22
☐	tr	Q6V2W5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	102	8e-22
☐	tr	Q6V2V9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	102	8e-22
☐	tr	Q66PR7	_SALMO Phase 1 flagellin [fliC] [Salmonella montevideo]	102	8e-22
☐	tr	Q6LDG7	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	102	8e-22
☐	tr	Q6LDG6	_SALET Phase-1 flagellin [fliC1] [Salmonella enterica s...	102	8e-22
☐	tr	Q66PR6	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	102	8e-22

tr	Q66PN4	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	102	8e-22
tr	Q66PN3	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	102	8e-22
tr	Q54864	_SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	102	8e-22
tr	Q54863	_SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	102	8e-22
tr	Q54210	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	102	8e-22
tr	Q53998	_SALEN Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	102	8e-22
tr	Q54329	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	101	2e-21
tr	Q53989	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	101	2e-21
tr	Q53967	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	101	2e-21
tr	Q53822	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	101	2e-21
tr	Q53993	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	100	3e-21
tr	Q53970	_SALDU Phase-1 flagellin [fliC1] [Salmonella dublin]	100	3e-21
tr	Q79DB7	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	100	5e-21
tr	Q57381	_SALEN Phase-1 flagellin [fliC1] [Salmonella enteritidis]	100	5e-21
tr	Q6V2W1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	100	6e-21
tr	Q6V2U9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	100	6e-21
sp	Q06981	FLIC_SALMC Flagellin (Phase-1-D flagellin) [fliC] [Sal...	98	1e-20
tr	Q66PR2	_SALMC Phase 1 flagellin [fliC] [Salmonella moscow]	98	1e-20
tr	Q6V2V0	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	98	1e-20
sp	O52959	FLIC_SALNA Phase-1 flagellin [fliC] [Salmonella naestved]	97	3e-20
sp	Q06971	FLIC_SALDU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	97	3e-20
tr	Q6V2V3	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	97	3e-20
tr	Q66PR3	_SALDU Phase 1 flagellin [fliC] [Salmonella dublin]	97	3e-20
tr	Q6V2V2	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	97	3e-20
tr	Q66PR5	_SALNA Phase 1 flagellin [fliC] [Salmonella naestved]	97	3e-20
tr	Q6V2V5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	97	5e-20
sp	Q06982	FLIC_SALRO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	95	1e-19
tr	Q66PR4	_SALRO Phase 1 flagellin [fliC] [Salmonella rostock]	95	1e-19
tr	Q6V2V1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	95	1e-19
sp	Q06968	FLIC_SALBE Flagellin (Phase-1-I flagellin) [fliC] [Sal...	93	7e-19
tr	Q6V2H1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	93	7e-19
tr	Q53583	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	93	7e-19
sp	Q06970	FLIC_SALDE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	91	2e-18
tr	Q6V2X1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	91	2e-18
tr	Q66PR8	_SALDE Phase 1 flagellin [fliC] [Salmonella derby]	91	2e-18
tr	Q6V2W8	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	91	2e-18
tr	Q66PS0	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	91	2e-18
tr	Q53992	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	91	3e-18
tr	Q6V2G9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	90	4e-18
tr	Q66PR9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	90	4e-18
tr	Q53990	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	90	4e-18
tr	Q53991	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	90	5e-18
tr	Q66PQ9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	90	5e-18
tr	Q66PQ8	_SALEE Phase 1 flagellin [fliC] [Salmonella enterica VI...	90	5e-18
tr	Q53996	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	90	5e-18

☐	tr Q66PR1 _SALSE Phase 1 flagellin [fliC] [Salmonella senftenberg]	88	2e-17
☐	tr Q54489 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	87	4e-17
☐	tr Q6V2X0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	87	4e-17
☐	tr Q6V2U0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	87	4e-17
☐	sp Q06983 FLIC_SALSE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	87	5e-17
☐	sp Q06969 FLIC_SALBU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	87	5e-17
☐	tr Q66PR0 _SALBU Phase 1 flagellin [fliC] [Salmonella budapest]	87	5e-17
☐	tr Q6V2U7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	87	5e-17
☐	tr Q6V2U6 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	87	5e-17
☐	tr Q6LD27 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	87	5e-17
☐	tr Q53995 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	85	2e-16
☐	tr Q54414 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	85	2e-16
☐	tr Q9R406 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	82	9e-16
☐	tr Q9R405 _SALGL Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	82	9e-16
☐	tr Q9R2V0 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	82	9e-16
☐	sp Q06974 FLIC_SALON Flagellin (Phase-1-C flagellin) [fliC] [Sal...	81	2e-15
☐	tr Q6V2V7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	81	2e-15
☐	tr Q6V2U4 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	81	2e-15
☐	tr Q6V2U1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	81	2e-15
☐	tr Q6LD24 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	81	2e-15
☐	tr Q54415 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	81	2e-15
☐	tr Q53821 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	81	2e-15
☐	tr Q6V2U3 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	81	3e-15
☐	tr Q6V2T7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	80	4e-15
☐	tr Q53994 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	79	1e-14
☐	tr Q6V2G8 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	79	1e-14
☐	tr Q54515 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	78	2e-14
☐	tr Q6V2G7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	77	4e-14
☐	tr Q5G1R0 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	70	4e-12
☐	tr Q5G1Q9 _SALPU FliC (Fragment) [fliC] [Salmonella pullorum]	60	6e-09
☐	tr Q5G1Q8 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	47	4e-05
☐	tr Q51ZS6 _MAGGR Hypothetical protein [MG05960.4] [Magnaporthe gr...	35	0.18
☐	tr Q89HH8 _BRAJA Blr6013 protein [blr6013] [Bradyrhizobium japoni...	33	0.78
☐	tr Q99U54 _STAAN EbhA protein [ebhA] [Staphylococcus aureus (stra...	32	1.0
☐	tr Q931R6 _STAAM Hypothetical protein ebhA [ebhA] [Staphylococcus...	32	1.0
☐	tr Q76DK5 _SALET Phase II flagellin [fljB] [Salmonella enterica s...	32	1.0
☐	tr Q08294 _YEAST S.cerevisiae chromosome XV reading frame ORF YOL...	32	1.0
☐	tr Q05164 _YEAST AOF1001 protein [AOF1001] [Saccharomyces cerevis...	32	1.0
☐	tr Q8ZN57 _SALTY Similar to the C-terminal region of AIDA [shdA] ...	32	1.4
☐	tr Q9XCJ4 _SALTY ShdA [shdA] [Salmonella typhimurium]	32	1.4
☐	tr Q6MK32 _BDEBA Cell wall surface anchor family protein precurso...	32	1.9
☐	tr Q6E6Y7 _CITFR Flagellin (Fragment) [fliC] [Citrobacter freundii]	32	1.9
☐	tr Q8E9G6 _SHEON RTX toxin, putative [SO4317] [Shewanella oneiden...	31	2.5
☐	tr Q68L35 _9DIPT Optomotor blind (Fragment) [omb] [Drosophila pol...	31	2.5
☐	tr Q8NWQ6 _STAAW Ebh protein [ebh] [Staphylococcus aureus (strain...	31	3.3

☐ tr Q74A98 _GEOSL Sensory box histidine kinase [GSU2492] [Geobacte... 31 3.3

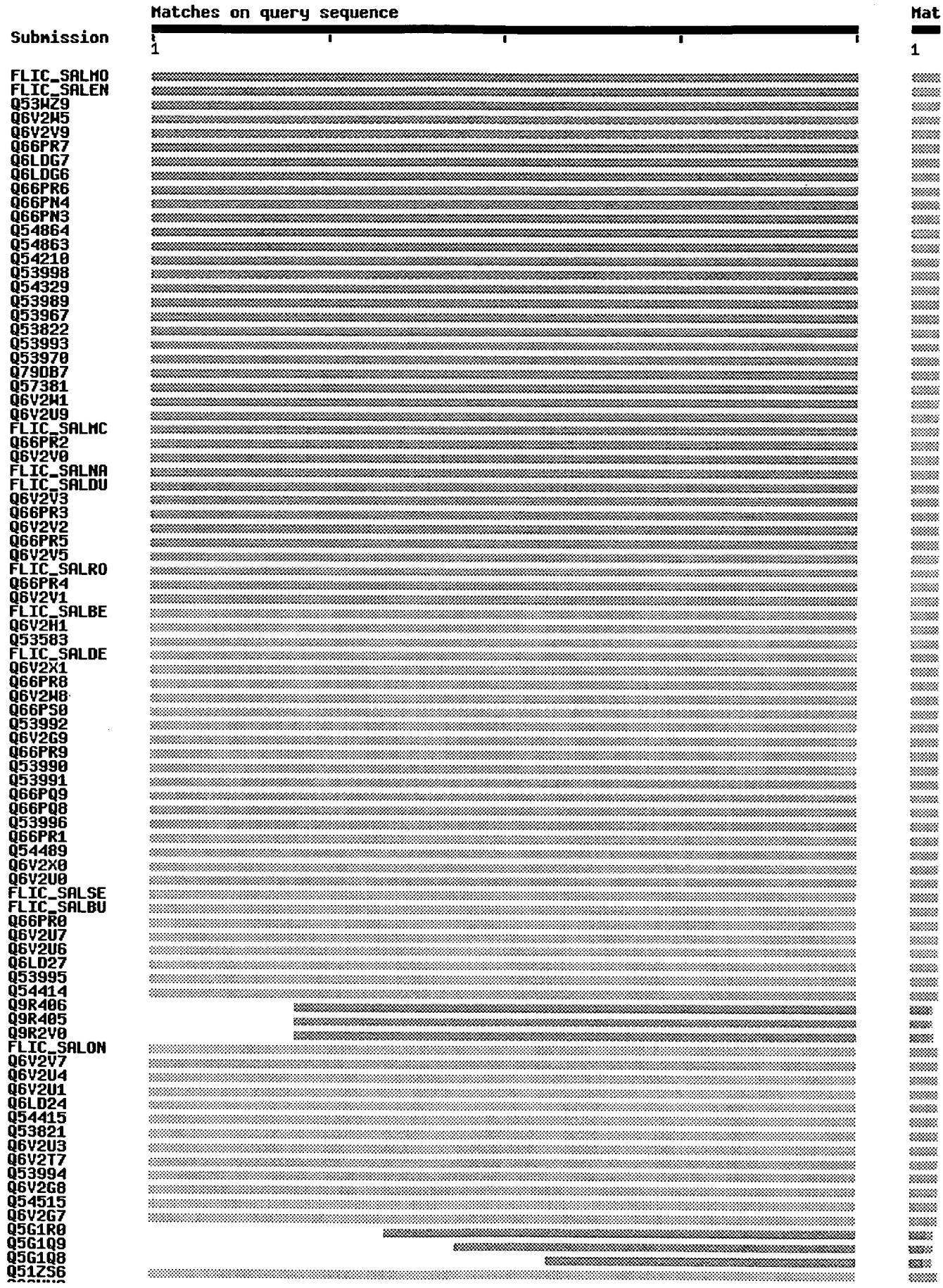
Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(? Help) (use ScanProsite for more details about PROSITE matches)

Profile hits

Pfam hits


Matches on query sequence
Mat
Submission
1
1
FLIC_SALMO
FLIC_SALEN
Q53WZ9
Q6V2W5
Q6V2V9
Q66PR7
Q6LDG7
Q6LDG6
Q66PR6
Q66PN4
Q66PN3
Q54864
Q54863
Q54210
Q53998
Q54329
Q53989
Q53967
Q53822
Q53993
Q53970
Q79DB7
Q57381
Q6V2W1
Q6V2U9
FLIC_SALMC
Q66PR2
Q6V2V0
FLIC_SALNA
FLIC_SALDU
Q6V2V3
Q66PR3
Q6V2V2
Q66PR5
Q6V2V5
FLIC_SALRO
Q66PR4
Q6V2V1
FLIC_SALBE
Q6V2W1
Q53583
FLIC_SALDE
Q6V2X1
Q66PR8
Q6V2W8
Q66PS0
Q53992
Q6V2G9
Q66PR9
Q53990
Q53991
Q66PQ9
Q66PQ8
Q53996
Q66PR1
Q54489
Q6V2X0
Q6V2U0
FLIC_SALSE
FLIC_SALBU
Q66PR0
Q6V2U7
Q6V2U6
Q6LD27
Q53995
Q54414
Q9R406
Q9R405
Q9R2V0
FLIC_SALON
Q6V2V7
Q6V2U4
Q6V2U1
Q6LD24
Q54415
Q53821
Q6V2U3
Q6V2T7
Q53994
Q6V2G8
Q54515
Q6V2G7
Q5G1R0
Q5G1Q9
Q5G1Q8
Q51ZS6

Alignments

sp Q06973 FLIC_SALMO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella montevideo]** 504 AA align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 287 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 326
```

sp Q06972 FLIC_SALEN **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella enteritidis]** 504 AA align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 287 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 326
```

tr Q53WZ9 Q53WZ9_SALEN **Phase 1 flagellin [fliC] [Salmonella enteritidis]** 505 AA align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q6V2W5 Q6V2W5_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q6V2V9 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V9_9ENTR
align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q66PR7 **Phase 1 flagellin [fliC] [Salmonella montevideo]** 505 AA
Q66PR7_SALMO
align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q6LDG7 **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 505 AA
Q6LDG7_SALGL
align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q6LDG6 **Phase-1 flagellin [fliC1] [Salmonella enterica subsp. enterica serovar Gallinarum/pullorum]** 505 AA
Q6LDG6_SALET
align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q66PR6 **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA
Q66PR6_SALET
align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q66PN4 Q66PN4_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Emek]** 505 AA align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q66PN3 Q66PN3_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q54864 Q54864_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q54863 Q54863_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

Score = 102 bits (236), Expect = 8e-22
Identities = 40/40 (100%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q54210 Q54210_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 494 AA

align

```
 Score =  102 bits (236), Expect = 8e-22
 Identities = 40/40 (100%), Positives = 40/40 (100%)

Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

tr Q53998 Q53998_SALEN **Phase-1 flagellin (Fragment) [fliC] [Salmonella enteritidis]** 493 AA align

```
 Score =  102 bits (236), Expect = 8e-22
 Identities = 40/40 (100%), Positives = 40/40 (100%)

Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 276 KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 315
```

tr Q54329 Q54329_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. jena]** 504 AA align

```
 Score =  101 bits (233), Expect = 2e-21
 Identities = 39/40 (97%), Positives = 40/40 (99%)

Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 287 KTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 326
```

tr Q53989 Q53989_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Essen]** 504 AA align

```
 Score =  101 bits (233), Expect = 2e-21
 Identities = 39/40 (97%), Positives = 40/40 (99%)

Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 287 KTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 326
```

tr Q53967 Q53967_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. danysz]** 465 AA align

Score = 101 bits (233), Expect = 2e-21
Identities = 39/40 (97%), Positives = 40/40 (99%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 287 KTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 326
```

tr Q53822 Q53822_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. chaco]** 504 AA align

Score = 101 bits (233), Expect = 2e-21
Identities = 39/40 (97%), Positives = 40/40 (99%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 287 KTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 326
```

tr Q53993 Q53993_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA align

Score = 100 bits (232), Expect = 3e-21
Identities = 39/40 (97%), Positives = 40/40 (99%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADI+TGATDVNAATLQS
Sbjct: 291 KTGDDGNGKVSTTINGEKVTLTVADITTGATDVNAATLQS 330
```

tr Q53970 Q53970_SALDU **Phase-1 flagellin [fliC1] [Salmonella dublin]** 505 AA align

Score = 100 bits (231), Expect = 3e-21
Identities = 39/40 (97%), Positives = 40/40 (99%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIATGA+DVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATGAADVNAATLQS 327
```

tr Q79DB7 Q79DB7_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Othmarschen]** 505 AA align

Score = 100 bits (230), Expect = 5e-21
Identities = 39/40 (97%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIAT ATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATSATDVNAATLQS 327
```

tr Q57381 Q57381_SALEN **Phase-1 flagellin [fliC1] [Salmonella enteritidis]** 505 AA align

Score = 100 bits (230), Expect = 5e-21
Identities = 39/40 (97%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIAT ATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIATSATDVNAATLQS 327
```

tr Q6V2W1 Q6V2W1_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 99.6 bits (229), Expect = 6e-21
Identities = 39/40 (97%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIA GATDVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIAIGATDVNAATLQS 327
```

tr Q6V2U9 Q6V2U9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 99.6 bits (229), Expect = 6e-21
Identities = 39/40 (97%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGD GNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
Sbjct: 288 KTGDGGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 327
```

sp Q06981 FLIC_SALMC **Flagellin (Phase-1-D flagellin) [fliC] [Salmonella moscow]** 504 AA align

Score = 98.3 bits (226), Expect = 1e-20
Identities = 38/40 (95%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQS
Sbjct: 287 KTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQS 326
```

tr Q66PR2 **Phase 1 flagellin [fliC] [Salmonella moscow]** 505 AA
Q66PR2_SALMC

align

Score = 98.3 bits (226), Expect = 1e-20
Identities = 38/40 (95%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQS
Sbjct: 288 KTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQS 327
```

tr Q6V2V0 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V0_9ENTR

align

Score = 98.3 bits (226), Expect = 1e-20
Identities = 38/40 (95%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQS
Sbjct: 288 KTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQS 327
```

sp O52959 **Phase-1 flagellin [fliC] [Salmonella naestved]** 504 AA
FLIC_SALNA

align

Score = 97.5 bits (224), Expect = 3e-20
Identities = 38/40 (95%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIA GA+DVNAATLQS
Sbjct: 287 KTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQS 326
```

sp Q06971 **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella dublin]** 504 AA
FLIC_SALDU

align

Score = 97.5 bits (224), Expect = 3e-20
Identities = 38/40 (95%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIA GA+DVNAATLQS
Sbjct: 287 KTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQS 326
```

tr Q6V2V3 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V3_9ENTR

align

```
 Score = 97.5 bits (224), Expect = 3e-20
 Identities = 38/40 (95%), Positives = 39/40 (97%)

Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIA GA+DVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQS 327
```

tr Q66PR3 **Phase 1 flagellin [fliC] [Salmonella dublin]** 505 AA
Q66PR3_SALDU

align

```
 Score = 97.5 bits (224), Expect = 3e-20
 Identities = 38/40 (95%), Positives = 39/40 (97%)

Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIA GA+DVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQS 327
```

tr Q6V2V2 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V2_9ENTR

align

```
 Score = 97.5 bits (224), Expect = 3e-20
 Identities = 38/40 (95%), Positives = 39/40 (97%)

Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIA GA+DVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQS 327
```

tr Q66PR5 **Phase 1 flagellin [fliC] [Salmonella naestved]** 505 AA
Q66PR5_SALNA

align

```
 Score = 97.5 bits (224), Expect = 3e-20
 Identities = 38/40 (95%), Positives = 39/40 (97%)

Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADIA GA+DVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQS 327
```

tr Q6V2V5 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V5_9ENTR
align

Score = 96.7 bits (222), Expect = 5e-20
Identities = 37/40 (92%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADIA+ ATDVNAATLQS
Sbjct: 288 KTGNDGNGKVSTTINGEKVTLTVADIAASATDVNAATLQS 327
```

sp Q06982 **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella** 504
FLIC_SALRO **rostock]** AA
align

Score = 95.4 bits (219), Expect = 1e-19
Identities = 37/40 (92%), Positives = 38/40 (94%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADI  GA+DVNAATLQS
Sbjct: 287 KTGDDGNGKVSTTINGEKVTLTVADIGIGAADVNAATLQS 326
```

tr Q66PR4 **Phase 1 flagellin [fliC] [Salmonella rostock]** 505 AA
Q66PR4_SALRO
align

Score = 95.4 bits (219), Expect = 1e-19
Identities = 37/40 (92%), Positives = 38/40 (94%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADI  GA+DVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIGIGAADVNAATLQS 327
```

tr Q6V2V1 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V1_9ENTR
align

Score = 95.4 bits (219), Expect = 1e-19
Identities = 37/40 (92%), Positives = 38/40 (94%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTGDDGNGKVSTTINGEKVTLTVADI  GA+DVNAATLQS
Sbjct: 288 KTGDDGNGKVSTTINGEKVTLTVADIGIGAADVNAATLQS 327
```

sp Q06968 FLIC_SALBE **Flagellin (Phase-1-I flagellin) [fliC] [Salmonella berta]** 507 AA

align

Score = 92.9 bits (213), Expect = 7e-19
Identities = 34/40 (85%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADI++GA++V+AATLQS
Sbjct: 290 KTGNDGNGKVSTTINGEKVTLTVADITAGAANVDAATLQS 329
```

tr Q6V2H1 Q6V2H1_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA

align

Score = 92.9 bits (213), Expect = 7e-19
Identities = 34/40 (85%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADI++GA++V+AATLQS
Sbjct: 291 KTGNDGNGKVSTTINGEKVTLTVADITAGAANVDAATLQS 330
```

tr Q53583 Q53583_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Adelaide]** 504 AA

align

Score = 92.9 bits (213), Expect = 7e-19
Identities = 34/40 (85%), Positives = 40/40 (100%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADI++GA++V+AATLQS
Sbjct: 287 KTGNDGNGKVSTTINGEKVTLTVADITAGAANVDAATLQS 326
```

sp Q06970 FLIC_SALDE **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella derby]** 504 AA

align

Score = 91.2 bits (209), Expect = 2e-18
Identities = 34/40 (85%), Positives = 39/40 (97%)

```
Query: 1   KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS 40
           KTG+DGNGKVSTTINGEKVTLTVADI+ GA++V+AATLQS
Sbjct: 287 KTGNDGNGKVSTTINGEKVTLTVADITGGAANVDAATLQS 326
```

tr Q6V2X1 Q6V2X1_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA

align

==========

SDS ID 8

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 27 AA
Date run: 2005-07-06 11:59:07 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to...

☐ Include query sequence

	Db	AC	Description	Score	E-value
☐	sp	Q06973	FLIC_SALMO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	83	6e-16
☐	sp	Q06972	FLIC_SALEN Flagellin (Phase-1-C flagellin) [fliC] [Sal...	83	6e-16
☐	tr	Q53WZ9	_SALEN Phase 1 flagellin [fliC] [Salmonella enteritidis]	83	6e-16
☐	tr	Q6V2W5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	83	6e-16
☐	tr	Q6V2V9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	83	6e-16
☐	tr	Q66PR7	_SALMO Phase 1 flagellin [fliC] [Salmonella montevideo]	83	6e-16
☐	tr	Q6LDG7	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	83	6e-16
☐	tr	Q6LDG6	_SALET Phase-1 flagellin [fliC1] [Salmonella enterica s...	83	6e-16
☐	tr	Q66PR6	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	83	6e-16

☐	tr Q66PN4 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	83	6e-16
☐	tr Q66PN3 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	83	6e-16
☐	tr Q54864 _SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	83	6e-16
☐	tr Q54863 _SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	83	6e-16
☐	tr Q54329 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	83	6e-16
☐	tr Q54210 _SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	83	6e-16
☐	tr Q53998 _SALEN Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	83	6e-16
☐	tr Q53989 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	83	6e-16
☐	tr Q53967 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	83	6e-16
☐	tr Q53822 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	83	6e-16
☐	tr Q53993 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	80	5e-15
☐	tr Q53970 _SALDU Phase-1 flagellin [fliC1] [Salmonella dublin]	80	5e-15
☐	sp Q06981 FLIC_SALMC Flagellin (Phase-1-D flagellin) [fliC] [Sal...	80	6e-15
☐	tr Q79DB7 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	80	6e-15
☐	tr Q66PR2 _SALMC Phase 1 flagellin [fliC] [Salmonella moscow]	80	6e-15
☐	tr Q6V2V0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	80	6e-15
☐	tr Q6V2U9 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	80	6e-15
☐	tr Q57381 _SALEN Phase-1 flagellin [fliC1] [Salmonella enteritidis]	80	6e-15
☐	tr Q6V2W1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	79	9e-15
☐	sp Q52959 FLIC_SALNA Phase-1 flagellin [fliC] [Salmonella naestved]	76	7e-14
☐	sp Q06971 FLIC_SALDU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	76	7e-14
☐	tr Q6V2V3 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	76	7e-14
☐	tr Q66PR3 _SALDU Phase 1 flagellin [fliC] [Salmonella dublin]	76	7e-14
☐	tr Q6V2V5 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	76	7e-14
☐	tr Q6V2V2 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	76	7e-14
☐	tr Q66PR5 _SALNA Phase 1 flagellin [fliC] [Salmonella naestved]	76	7e-14
☐	sp Q06968 FLIC_SALBE Flagellin (Phase-1-I flagellin) [fliC] [Sal...	74	4e-13
☐	tr Q6V2H1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	74	4e-13
☐	tr Q53583 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	74	4e-13
☐	sp Q06982 FLIC_SALRO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	73	7e-13
☐	tr Q53992 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	73	7e-13
☐	tr Q53991 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	73	7e-13
☐	tr Q66PR4 _SALRO Phase 1 flagellin [fliC] [Salmonella rostock]	73	7e-13
☐	tr Q6V2V1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	73	7e-13
☐	tr Q66PQ9 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	73	7e-13
☐	tr Q66PQ8 _SALEE Phase 1 flagellin [fliC] [Salmonella enterica VI...	73	7e-13
☐	tr Q53996 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	73	7e-13
☐	sp Q06970 FLIC_SALDE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	71	2e-12
☐	tr Q6V2X1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	71	2e-12
☐	tr Q66PR8 _SALDE Phase 1 flagellin [fliC] [Salmonella derby]	71	2e-12
☐	tr Q6V2W8 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	71	2e-12
☐	tr Q66PS0 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	71	2e-12
☐	tr Q9R406 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	71	2e-12
☐	tr Q9R405 _SALGL Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	71	2e-12
☐	tr Q9R2V0 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	71	2e-12

tr Q53995 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	71	3e-12
sp Q06983 FLIC_SALSE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	69	7e-12
sp Q06969 FLIC_SALBU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	69	7e-12
tr Q66PR0 _SALBU Phase 1 flagellin [fliC] [Salmonella budapest]	69	7e-12
tr Q6V2U7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	69	7e-12
tr Q6V2U6 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	69	7e-12
tr Q6V2G9 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	69	7e-12
tr Q6LD27 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	69	7e-12
tr Q66PR9 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	69	7e-12
tr Q66PR1 _SALSE Phase 1 flagellin [fliC] [Salmonella senftenberg]	69	7e-12
tr Q53990 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	69	7e-12
tr Q54489 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	68	2e-11
tr Q6V2U0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	68	2e-11
tr Q6V2V7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	68	2e-11
tr Q6V2G8 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	68	2e-11
tr Q6V2X0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	67	3e-11
tr Q6V2T7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	66	6e-11
tr Q6V2G7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	65	1e-10
tr Q53994 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	65	1e-10
tr Q54414 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	65	2e-10
tr Q54515 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	64	3e-10
tr Q6V2U4 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	64	3e-10
sp Q06974 FLIC_SALON Flagellin (Phase-1-C flagellin) [fliC] [Sal...	64	3e-10
tr Q6V2U1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	64	3e-10
tr Q6LD24 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	64	3e-10
tr Q54415 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	64	3e-10
tr Q53821 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	64	3e-10
tr Q6V2U3 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	63	5e-10
tr Q5G1R0 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	57	5e-08
tr Q5G1Q9 _SALPU FliC (Fragment) [fliC] [Salmonella pullorum]	44	3e-04
tr Q8Y5E5 _LISMO Lmo2119 protein [lmo2119] [Listeria monocytogenes]	32	1.3
tr Q71XP4 _LISMF Hypothetical protein [LMOf2365_2152] [Listeria m...	32	1.3
tr Q64XJ1 _BACFR Thioredoxin reductase [BF1035] [Bacteroides frag...	32	1.3
tr Q5LGP4 _BACFR Putative thioredoxin reductase (EC 1.8.1.9) [trx...	32	1.3
tr Q929Q0 _LISIN Lin2224 protein [lin2224] [Listeria innocua]	31	3.1
tr Q9AH56 _NEIME Exl2 [exl2] [Neisseria meningitidis]	29	7.5

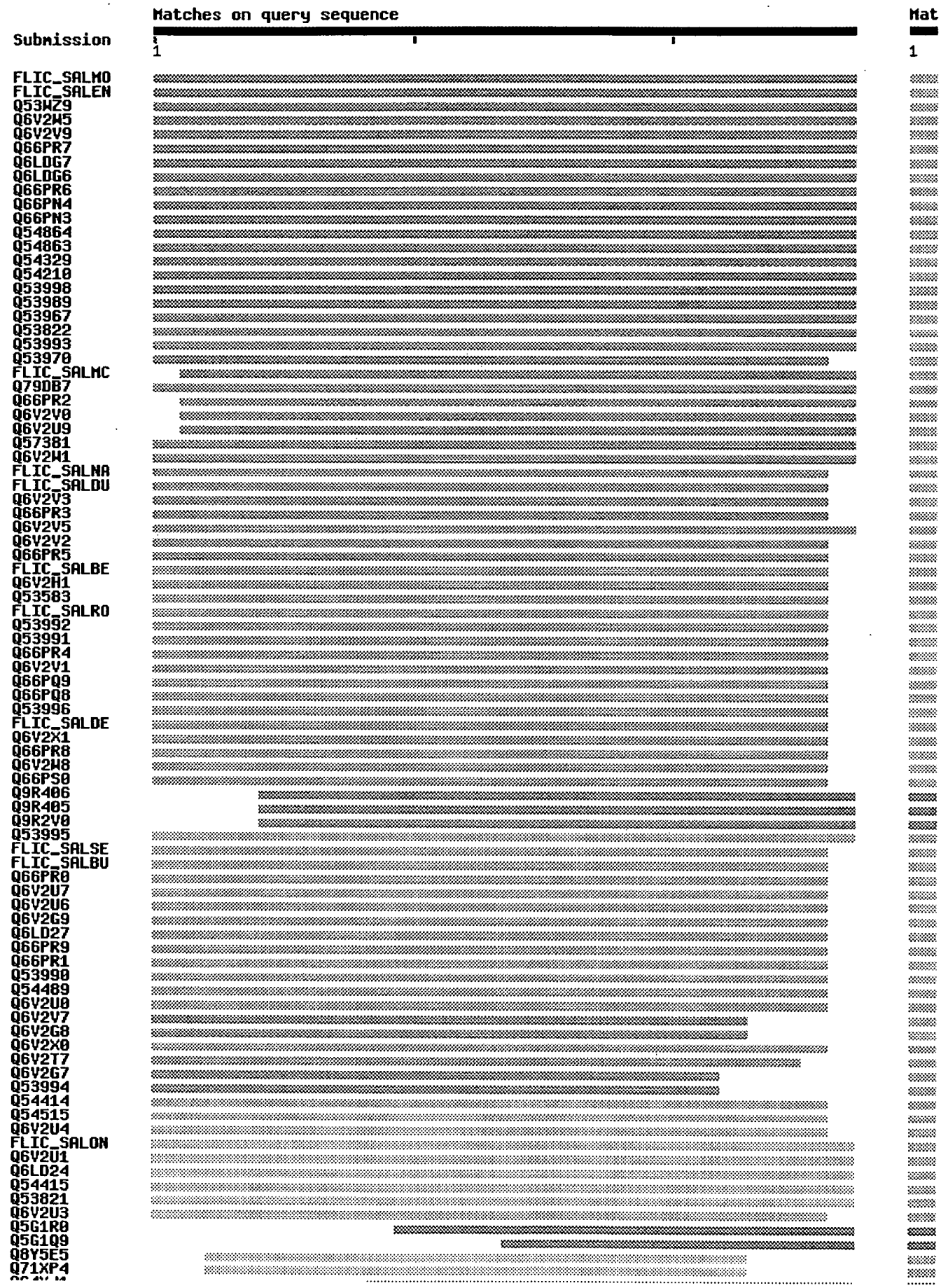
Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(Help) (use ScanProsite for more details about PROSITE matches)

Profile hits

Pfam hits


Matches on query sequence
Mat
Submission
1
1
FLIC_SALMO
FLIC_SALEN
Q53WZ9
Q6V2W5
Q6V2V9
Q66PR7
Q6LDG7
Q6LDG6
Q66PR6
Q66PN4
Q66PN3
Q54864
Q54863
Q54329
Q54210
Q53998
Q53989
Q53967
Q53822
Q53993
Q53970
FLIC_SALMC
Q79DB7
Q66PR2
Q6V2V0
Q6V2U9
Q57381
Q6V2W1
FLIC_SALNA
FLIC_SALDU
Q6V2V3
Q66PR3
Q6V2V5
Q6V2V2
Q66PR5
FLIC_SALBE
Q6V2H1
Q53583
FLIC_SALRO
Q53992
Q53991
Q66PR4
Q6V2V1
Q66PQ9
Q66PQ8
Q53996
FLIC_SALDE
Q6V2X1
Q66PR8
Q6V2W8
Q66PS0
Q9R406
Q9R405
Q9R2V0
Q53995
FLIC_SALSE
FLIC_SALBU
Q66PR0
Q6V2U7
Q6V2U6
Q6V2G9
Q6LD27
Q66PR9
Q66PR1
Q53990
Q54489
Q6V2U8
Q6V2V7
Q6V2G8
Q6V2X0
Q6V2T7
Q6V2G7
Q53994
Q54414
Q54515
Q6V2U4
FLIC_SALON
Q6V2U1
Q6LD24
Q54415
Q53821
Q6V2U3
Q5G1R0
Q5G1Q9
Q8Y5E5
Q71XP4

Alignments

sp Q06973 FLIC_SALMO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella montevideo]** 504 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIATGAT 317
```

sp Q06972 FLIC_SALEN **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella enteritidis]** 504 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIATGAT 317
```

tr Q53WZ9 Q53WZ9_SALEN **Phase 1 flagellin [fliC] [Salmonella enteritidis]** 505 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q6V2W5 Q6V2W5_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q6V2V9 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V9_9ENTR
align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q66PR7 **Phase 1 flagellin [fliC] [Salmonella montevideo]** 505 AA
Q66PR7_SALMO
align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q6LDG7 **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 505 AA
Q6LDG7_SALGL
align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q6LDG6 **Phase-1 flagellin [fliC1] [Salmonella enterica subsp. enterica serovar Gallinarum/pullorum]** 505 AA
Q6LDG6_SALET
align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q66PR6 **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA
Q66PR6_SALET
align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q66PN4 Q66PN4_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Emek]** 505 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q66PN3 Q66PN3_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q54864 Q54864_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q54863 Q54863_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q54329 Q54329_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. jena]** 504 AA align

```
 Score = 82.9 bits (188), Expect = 6e-16
 Identities = 27/27 (100%), Positives = 27/27 (100%)

Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIATGAT 317
```

tr Q54210 Q54210_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 494 AA align

```
 Score = 82.9 bits (188), Expect = 6e-16
 Identities = 27/27 (100%), Positives = 27/27 (100%)

Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q53998 Q53998_SALEN **Phase-1 flagellin (Fragment) [fliC] [Salmonella enteritidis]** 493 AA align

```
 Score = 82.9 bits (188), Expect = 6e-16
 Identities = 27/27 (100%), Positives = 27/27 (100%)

Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 280 DGNGKVSTTINGEKVTLTVADIATGAT 306
```

tr Q53989 Q53989_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Essen]** 504 AA align

```
 Score = 82.9 bits (188), Expect = 6e-16
 Identities = 27/27 (100%), Positives = 27/27 (100%)

Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIATGAT 317
```

tr Q53967 Q53967_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. danysz]** 465 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIATGAT 317
```

tr Q53822 Q53822_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. chaco]** 504 AA align

Score = 82.9 bits (188), Expect = 6e-16
Identities = 27/27 (100%), Positives = 27/27 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIATGAT 317
```

tr Q53993 Q53993_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA align

Score = 80.0 bits (181), Expect = 5e-15
Identities = 26/27 (96%), Positives = 26/27 (96%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADI TGAT
Sbjct: 295 DGNGKVSTTINGEKVTLTVADITTGAT 321
```

tr Q53970 Q53970_SALDU **Phase-1 flagellin [fliC1] [Salmonella dublin]** 505 AA align

Score = 80.0 bits (181), Expect = 5e-15
Identities = 26/26 (100%), Positives = 26/26 (100%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADIATGA
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATGA 317
```

sp Q06981 **Flagellin (Phase-1-D flagellin) [fliC] [Salmonella moscow]** 504 AA
FLIC_SALMC
align

Score = 79.5 bits (180), Expect = 6e-15
Identities = 26/26 (100%), Positives = 26/26 (100%)

```
Query: 2   GNGKVSTTINGEKVTLTVADIATGAT 27
           GNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 292 GNGKVSTTINGEKVTLTVADIATGAT 317
```

tr Q79DB7 **Phase 1 flagellin [fliC] [Salmonella enterica subsp.** 505
Q79DB7_SALET **enterica** AA
serovar Othmarschen] align

Score = 79.5 bits (180), Expect = 6e-15
Identities = 26/27 (96%), Positives = 26/27 (96%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIAT AT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATSAT 318
```

tr Q66PR2 **Phase 1 flagellin [fliC] [Salmonella moscow]** 505 AA
Q66PR2_SALMC
align

Score = 79.5 bits (180), Expect = 6e-15
Identities = 26/26 (100%), Positives = 26/26 (100%)

```
Query: 2   GNGKVSTTINGEKVTLTVADIATGAT 27
           GNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 293 GNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q6V2V0 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V0_9ENTR
align

Score = 79.5 bits (180), Expect = 6e-15
Identities = 26/26 (100%), Positives = 26/26 (100%)

```
Query: 2   GNGKVSTTINGEKVTLTVADIATGAT 27
           GNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 293 GNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q6V2U9 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2U9_9ENTR
align

Score = 79.5 bits (180), Expect = 6e-15
Identities = 26/26 (100%), Positives = 26/26 (100%)

```
Query: 2   GNGKVSTTINGEKVTLTVADIATGAT 27
           GNGKVSTTINGEKVTLTVADIATGAT
Sbjct: 293 GNGKVSTTINGEKVTLTVADIATGAT 318
```

tr Q57381 **Phase-1 flagellin [fliC1] [Salmonella enteritidis]** 505 AA
Q57381_SALEN

align

Score = 79.5 bits (180), Expect = 6e-15
Identities = 26/27 (96%), Positives = 26/27 (96%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIAT AT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIATSAT 318
```

tr Q6V2W1 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2W1_9ENTR

align

Score = 79.1 bits (179), Expect = 9e-15
Identities = 26/27 (96%), Positives = 26/27 (96%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIA GAT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIAIGAT 318
```

sp O52959 **Phase-1 flagellin [fliC] [Salmonella naestved]** 504 AA
FLIC_SALNA

align

Score = 76.1 bits (172), Expect = 7e-14
Identities = 25/26 (96%), Positives = 25/26 (96%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADIA GA
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIAIGA 316
```

sp Q06971 **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella dublin]** 504 AA
FLIC_SALDU

align

Score = 76.1 bits (172), Expect = 7e-14
Identities = 25/26 (96%), Positives = 25/26 (96%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADIA GA
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIAIGA 316
```

tr Q6V2V3 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V3_9ENTR

align

```
 Score = 76.1 bits (172), Expect = 7e-14
 Identities = 25/26 (96%), Positives = 25/26 (96%)

Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADIA GA
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIAIGA 317
```

tr Q66PR3 **Phase 1 flagellin [fliC] [Salmonella dublin]** 505 AA
Q66PR3_SALDU

align

```
 Score = 76.1 bits (172), Expect = 7e-14
 Identities = 25/26 (96%), Positives = 25/26 (96%)

Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADIA GA
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIAIGA 317
```

tr Q6V2V5 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V5_9ENTR

align

```
 Score = 76.1 bits (172), Expect = 7e-14
 Identities = 25/27 (92%), Positives = 25/27 (92%)

Query: 1   DGNGKVSTTINGEKVTLTVADIATGAT 27
           DGNGKVSTTINGEKVTLTVADIA  AT
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIAASAT 318
```

tr Q6V2V2 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V2_9ENTR

align

```
 Score = 76.1 bits (172), Expect = 7e-14
 Identities = 25/26 (96%), Positives = 25/26 (96%)

Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADIA GA
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIAIGA 317
```

tr Q66PR5 **Phase 1 flagellin [fliC] [Salmonella naestved]** 505 AA
Q66PR5_SALNA
align

Score = 76.1 bits (172), Expect = 7e-14
Identities = 25/26 (96%), Positives = 25/26 (96%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADIA GA
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIAIGA 317
```

sp Q06968 **Flagellin (Phase-1-I flagellin) [fliC] [Salmonella berta]** 507 AA
FLIC_SALBE
align

Score = 73.6 bits (166), Expect = 4e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADI  GA
Sbjct: 294 DGNGKVSTTINGEKVTLTVADITAGA 319
```

tr Q6V2H1 **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA
Q6V2H1_9ENTR
align

Score = 73.6 bits (166), Expect = 4e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADI  GA
Sbjct: 295 DGNGKVSTTINGEKVTLTVADITAGA 320
```

tr Q53583 **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica** 504
Q53583_SALET **subsp.** AA
enterica serovar Adelaide] align

Score = 73.6 bits (166), Expect = 4e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADI  GA
Sbjct: 291 DGNGKVSTTINGEKVTLTVADITAGA 316
```

sp Q06982 FLIC_SALRO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella rostock]** 504 AA align

Score = 72.7 bits (164), Expect = 7e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADI  GA
Sbjct: 291 DGNGKVSTTINGEKVTLTVADIGIGA 316
```

tr Q53992 Q53992_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 72.7 bits (164), Expect = 7e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNG VSTTINGEKVTLTVADI TGA
Sbjct: 292 DGNGTVSTTINGEKVTLTVADITTGA 317
```

tr Q53991 Q53991_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA align

Score = 72.7 bits (164), Expect = 7e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNG VSTTINGEKVTLTVADI TGA
Sbjct: 291 DGNGTVSTTINGEKVTLTVADITTGA 316
```

tr Q66PR4 Q66PR4_SALRO **Phase 1 flagellin [fliC] [Salmonella rostock]** 505 AA align

Score = 72.7 bits (164), Expect = 7e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADI  GA
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIGIGA 317
```

tr Q6V2V1 Q6V2V1_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 72.7 bits (164), Expect = 7e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNGKVSTTINGEKVTLTVADI  GA
Sbjct: 292 DGNGKVSTTINGEKVTLTVADIGIGA 317
```

tr Q66PQ9 Q66PQ9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica subsp. houtenae serovar 45a,b:g,z51:-]** 504 AA align

Score = 72.7 bits (164), Expect = 7e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNG VSTTINGEKVTLTVADI TGA
Sbjct: 291 DGNGTVSTTINGEKVTLTVADITTGA 316
```

tr Q66PQ8 Q66PQ8_SALEE **Phase 1 flagellin [fliC] [Salmonella enterica VII 1,40:g,z51:--]** 504 AA align

Score = 72.7 bits (164), Expect = 7e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNG VSTTINGEKVTLTVADI TGA
Sbjct: 291 DGNGTVSTTINGEKVTLTVADITTGA 316
```

tr Q53996 Q53996_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA align

Score = 72.7 bits (164), Expect = 7e-13
Identities = 24/26 (92%), Positives = 24/26 (92%)

```
Query: 1   DGNGKVSTTINGEKVTLTVADIATGA 26
           DGNG VSTTINGEKVTLTVADI TGA
Sbjct: 291 DGNGTVSTTINGEKVTLTVADITTGA 316
```

sp Q06970 FLIC_SALDE **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella derby]** 504 AA align

Score = 71.5 bits (161), Expect = 2e-12
Identities = 24/26 (92%), Positives = 24/26 (92%)

==========

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 11 AA
Date run: 2005-07-06 12:00:41 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to...

☐ Include query sequence

	Db	AC	Description	Score	E-value
☐	sp	Q06983	FLIC_SALSE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	36	0.071
☐	sp	Q06982	FLIC_SALRO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	36	0.071
☐	sp	Q06974	FLIC_SALON Flagellin (Phase-1-C flagellin) [fliC] [Sal...	36	0.071
☐	sp	O52959	FLIC_SALNA Phase-1 flagellin [fliC] [Salmonella naestved]	36	0.071
☐	sp	Q06973	FLIC_SALMO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	36	0.071
☐	sp	Q06981	FLIC_SALMC Flagellin (Phase-1-D flagellin) [fliC] [Sal...	36	0.071
☐	sp	Q06972	FLIC_SALEN Flagellin (Phase-1-C flagellin) [fliC] [Sal...	36	0.071
☐	sp	Q06971	FLIC_SALDU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	36	0.071
☐	sp	Q06970	FLIC_SALDE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	36	0.071

sp	Q06969	FLIC_SALBU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	36	0.071
sp	Q06968	FLIC_SALBE Flagellin (Phase-1-I flagellin) [fliC] [Sal...	36	0.071
tr	Q79DB7	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	36	0.071
tr	Q54515	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	36	0.071
tr	Q53995	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q53993	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q53992	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q53991	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q53WZ9	_SALEN Phase 1 flagellin [fliC] [Salmonella enteritidis]	36	0.071
tr	Q6V2X1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2W5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2V9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2V3	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q66PR8	_SALDE Phase 1 flagellin [fliC] [Salmonella derby]	36	0.071
tr	Q66PR7	_SALMO Phase 1 flagellin [fliC] [Salmonella montevideo]	36	0.071
tr	Q66PR4	_SALRO Phase 1 flagellin [fliC] [Salmonella rostock]	36	0.071
tr	Q66PR3	_SALDU Phase 1 flagellin [fliC] [Salmonella dublin]	36	0.071
tr	Q66PR2	_SALMC Phase 1 flagellin [fliC] [Salmonella moscow]	36	0.071
tr	Q66PR0	_SALBU Phase 1 flagellin [fliC] [Salmonella budapest]	36	0.071
tr	Q9R406	_SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	36	0.071
tr	Q9R405	_SALGL Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	36	0.071
tr	Q9R2V0	_SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	36	0.071
tr	Q6V2X0	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2W8	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2W1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2V7	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2V5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2V2	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2V1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2V0	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2U9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2U7	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2U6	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2U4	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2U3	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2U1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2T7	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2H1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2G9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2G8	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6V2G7	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	36	0.071
tr	Q6LDG7	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	36	0.071
tr	Q6LDG6	_SALET Phase-1 flagellin [fliC1] [Salmonella enterica s...	36	0.071
tr	Q6LD27	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	36	0.071
tr	Q6LD24	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	36	0.071

☐	tr Q66PS0 _SALET	Phase 1 flagellin [fliC]	[Salmonella enterica su...	36	0.071
☐	tr Q66PR9 _9ENTR	Phase 1 flagellin [fliC]	[Salmonella enterica su...	36	0.071
☐	tr Q66PR6 _SALET	Phase 1 flagellin [fliC]	[Salmonella enterica su...	36	0.071
☐	tr Q66PR5 _SALNA	Phase 1 flagellin [fliC]	[Salmonella naestved]	36	0.071
☐	tr Q66PR1 _SALSE	Phase 1 flagellin [fliC]	[Salmonella senftenberg]	36	0.071
☐	tr Q66PQ9 _9ENTR	Phase 1 flagellin [fliC]	[Salmonella enterica su...	36	0.071
☐	tr Q66PQ8 _SALEE	Phase 1 flagellin [fliC]	[Salmonella enterica VI...	36	0.071
☐	tr Q66PN4 _SALET	Phase 1 flagellin [fliC]	[Salmonella enterica su...	36	0.071
☐	tr Q66PN3 _SALET	Phase 1 flagellin [fliC]	[Salmonella enterica su...	36	0.071
☐	tr Q57381 _SALEN	Phase-1 flagellin [fliC1]	[Salmonella enteritidis]	36	0.071
☐	tr Q54864 _SALPU	Phase-1 flagellin [fliC]	[Salmonella pullorum]	36	0.071
☐	tr Q54863 _SALPU	Phase-1 flagellin [fliC]	[Salmonella pullorum]	36	0.071
☐	tr Q54415 _SALET	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	36	0.071
☐	tr Q54329 _SALET	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	36	0.071
☐	tr Q54210 _SALGL	Phase-1 flagellin [fliC1]	[Salmonella gallinarum]	36	0.071
☐	tr Q53998 _SALEN	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	36	0.071
☐	tr Q53996 _9ENTR	Phase 1 flagellin [fliC]	[Salmonella enterica]	36	0.071
☐	tr Q53994 _9ENTR	Phase 1 flagellin [fliC]	[Salmonella enterica]	36	0.071
☐	tr Q53990 _9ENTR	Phase 1 flagellin [fliC]	[Salmonella enterica]	36	0.071
☐	tr Q53989 _SALET	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	36	0.071
☐	tr Q53970 _SALDU	Phase-1 flagellin [fliC1]	[Salmonella dublin]	36	0.071
☐	tr Q53967 _SALET	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	36	0.071
☐	tr Q53822 _SALET	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	36	0.071
☐	tr Q53821 _SALET	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	36	0.071
☐	tr Q53583 _SALET	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	36	0.071
☐	tr Q54489 _SALET	Phase 1 flagellin [fliC]	[Salmonella enterica su...	32	1.8
☐	tr Q6V2U0 _9ENTR	Phase 1 flagellin [fliC]	[Salmonella enterica]	32	1.8
☐	tr Q54414 _SALET	Phase-1 flagellin (Fragment) [fliC]	[Salmonella ...	32	1.8

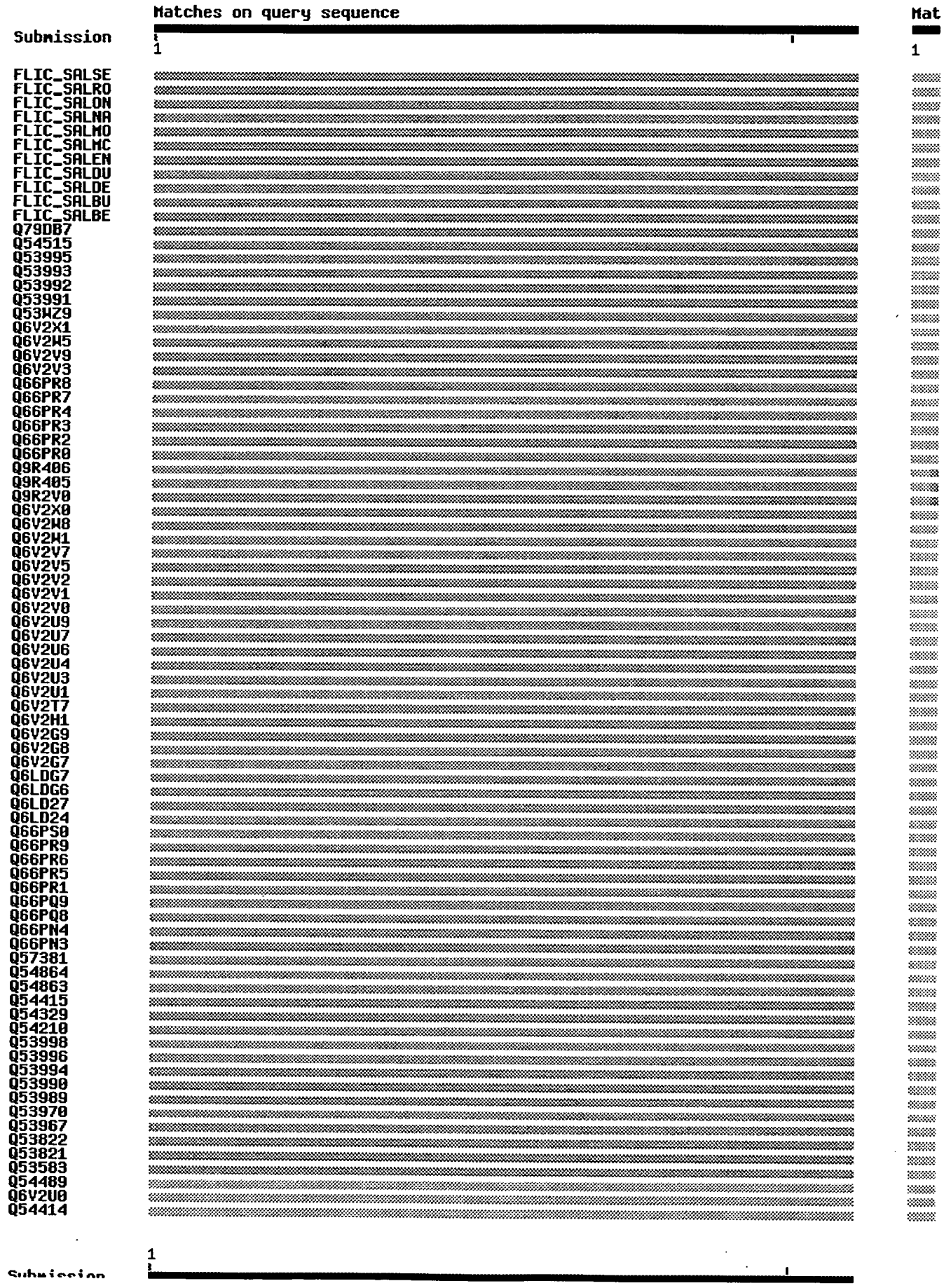
Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(Help) (use ScanProsite for more details about PROSITE matches)

Profile hits

Pfam hits


Matches on query sequence
Mat
Submission
1
1
FLIC_SALSE
FLIC_SALRO
FLIC_SALON
FLIC_SALNA
FLIC_SALMO
FLIC_SALMC
FLIC_SALEN
FLIC_SALDU
FLIC_SALDE
FLIC_SALBU
FLIC_SALBE
Q79DB7
Q54515
Q53995
Q53993
Q53992
Q53991
Q53WZ9
Q6V2X1
Q6V2W5
Q6V2V9
Q6V2V3
Q66PR8
Q66PR7
Q66PR4
Q66PR3
Q66PR2
Q66PR0
Q9R406
Q9R405
Q9R2V0
Q6V2X0
Q6V2W8
Q6V2W1
Q6V2V7
Q6V2V5
Q6V2V2
Q6V2V1
Q6V2V0
Q6V2U9
Q6V2U7
Q6V2U6
Q6V2U4
Q6V2U3
Q6V2U1
Q6V2T7
Q6V2H1
Q6V2G9
Q6V2G8
Q6V2G7
Q6LDG7
Q6LDG6
Q6LD27
Q6LD24
Q66PS0
Q66PR9
Q66PR6
Q66PR5
Q66PR1
Q66PQ9
Q66PQ8
Q66PN4
Q66PN3
Q57381
Q54864
Q54863
Q54415
Q54329
Q54210
Q53998
Q53996
Q53994
Q53990
Q53989
Q53970
Q53967
Q53822
Q53821
Q53583
Q54489
Q6V2U0
Q54414
1
Submission

Alignments

sp Q06983 FLIC_SALSE **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella senftenberg]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06982 FLIC_SALRO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella rostock]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06974 FLIC_SALON **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella oranienberg]** 507 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 300 STTINGEKVTL 310
```

sp O52959 FLIC_SALNA **Phase-1 flagellin [fliC] [Salmonella naestved]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06973 FLIC_SALMO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella montevideo]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06981 FLIC_SALMC **Flagellin (Phase-1-D flagellin) [fliC] [Salmonella moscow]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06972 FLIC_SALEN **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella enteritidis]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06971 FLIC_SALDU **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella dublin]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06970 FLIC_SALDE **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella derby]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06969 FLIC_SALBU **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella budapest]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

sp Q06968 FLIC_SALBE **Flagellin (Phase-1-I flagellin) [fliC] [Salmonella berta]** 507 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 300 STTINGEKVTL 310
```

tr Q79DB7 Q79DB7_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Othmarschen]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q54515 Q54515_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Pensacola]** 508 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 301 STTINGEKVTL 311
```

tr Q53995 **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA
Q53995_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 301 STTINGEKVTL 311
```

tr Q53993 **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA
Q53993_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 301 STTINGEKVTL 311
```

tr Q53992 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q53992_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q53991 **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA
Q53991_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q53WZ9 **Phase 1 flagellin [fliC] [Salmonella enteritidis]** 505 AA
Q53WZ9_SALEN

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2X1 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2X1_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2W5 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2W5_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2V9 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V9_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2V3 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V3_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR8 **Phase 1 flagellin [fliC] [Salmonella derby]** 505 AA
Q66PR8_SALDE

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR7 **Phase 1 flagellin [fliC] [Salmonella montevideo]** 505 AA
Q66PR7_SALMO

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR4 **Phase 1 flagellin [fliC] [Salmonella rostock]** 505 AA
Q66PR4_SALRO

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR3 **Phase 1 flagellin [fliC] [Salmonella dublin]** 505 AA
Q66PR3_SALDU

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR2 Q66PR2_SALMC **Phase 1 flagellin [fliC] [Salmonella moscow]** 505 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR0 Q66PR0_SALBU **Phase 1 flagellin [fliC] [Salmonella budapest]** 505 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q9R406 Q9R406_SALPU **Phase 1 flagellin C (Fragment) [fliC] [Salmonella pullorum]** 45 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1  STTINGEKVTL 11
          STTINGEKVTL
Sbjct: 3  STTINGEKVTL 13
```

tr Q9R405 Q9R405_SALGL **Phase 1 flagellin C (Fragment) [fliC] [Salmonella gallinarum]** 45 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1  STTINGEKVTL 11
          STTINGEKVTL
Sbjct: 3  STTINGEKVTL 13
```

tr Q9R2V0 Q9R2V0_SALPU **Phase 1 flagellin C (Fragment) [fliC] [Salmonella pullorum]** 52 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1  STTINGEKVTL 11
          STTINGEKVTL
Sbjct: 3  STTINGEKVTL 13
```

tr Q6V2X0 Q6V2X0_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2W8 Q6V2W8_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2W1 Q6V2W1_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2V7 **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA
Q6V2V7_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2V5 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V5_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2V2 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V2_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2V1 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V1_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2V0 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2V0_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2U9 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2U9_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2U7 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2U7_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2U6 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2U6_9ENTR

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2U4 **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA
Q6V2U4_9ENTR

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)

Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 301 STTINGEKVTL 311
```

tr Q6V2U3 **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA
Q6V2U3_9ENTR

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)

Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 301 STTINGEKVTL 311
```

tr Q6V2U1 **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA
Q6V2U1_9ENTR

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)

Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 301 STTINGEKVTL 311
```

tr Q6V2T7 **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA
Q6V2T7_9ENTR

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)

Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2H1 **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA
Q6V2H1_9ENTR

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)
```

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 301 STTINGEKVTL 311
```

tr Q6V2G9 **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA
Q6V2G9_9ENTR

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)

Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2G8 **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA
Q6V2G8_9ENTR

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)

Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6V2G7 **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA
Q6V2G7_9ENTR

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)

Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6LDG7 **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 505 AA
Q6LDG7_SALGL

align

```
 Score = 36.3 bits (78), Expect = 0.071
 Identities = 11/11 (100%), Positives = 11/11 (100%)

Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6LDG6 Q6LDG6_SALET **Phase-1 flagellin [fliC1] [Salmonella enterica subsp. enterica serovar Gallinarum/pullorum]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q6LD27 Q6LD27_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Simsbury]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q6LD24 Q6LD24_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Banana]** 508 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 301 STTINGEKVTL 311
```

tr Q66PS0 Q66PS0_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Agona]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR9 Q66PR9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica subsp. salamae serovar 42:f,g,t:--]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR6 Q66PR6_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR5 Q66PR5_SALNA **Phase 1 flagellin [fliC] [Salmonella naestved]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PR1 Q66PR1_SALSE **Phase 1 flagellin [fliC] [Salmonella senftenberg]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PQ9 Q66PQ9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica subsp. houtenae serovar 45a,b:g,z51:-]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q66PQ8 Q66PQ8_SALEE **Phase 1 flagellin [fliC] [Salmonella enterica VII 1,40:g,z51:--]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q66PN4 Q66PN4_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Emek]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q66PN3 Q66PN3_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q57381 Q57381_SALEN **Phase-1 flagellin [fliC1] [Salmonella enteritidis]** 505 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q54864 **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA
Q54864_SALPU
align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q54863 **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA
Q54863_SALPU
align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q54415 **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Monschaui]** 507 AA
Q54415_SALET
align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 300 STTINGEKVTL 310
```

tr Q54329 **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. jena]** 504 AA
Q54329_SALET
align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q54210 Q54210_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 494 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q53998 Q53998_SALEN **Phase-1 flagellin (Fragment) [fliC] [Salmonella enteritidis]** 493 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 286 STTINGEKVTL 296
```

tr Q53996 Q53996_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q53994 Q53994_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q53990 Q53990_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q53989 Q53989_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Essen]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q53970 Q53970_SALDU **Phase-1 flagellin [fliC1] [Salmonella dublin]** 505 AA

align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 298 STTINGEKVTL 308
```

tr Q53967 Q53967_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. danysz]** 465 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q53822 Q53822_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. chaco]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q53821 Q53821_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar California]** 507 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 300 STTINGEKVTL 310
```

tr Q53583 Q53583_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Adelaide]** 504 AA align

Score = 36.3 bits (78), Expect = 0.071
Identities = 11/11 (100%), Positives = 11/11 (100%)

```
Query: 1   STTINGEKVTL 11
           STTINGEKVTL
Sbjct: 297 STTINGEKVTL 307
```

tr Q54489 Q54489_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Newmexico]** 504 AA align

Score = 31.6 bits (67), Expect = 1.8
Identities = 10/11 (90%), Positives = 10/11 (90%)

```
Query: 1   STTINGEKVTL 11
           ST INGEKVTL
Sbjct: 297 STMINGEKVTL 307
```

tr Q6V2U0 Q6V2U0_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 504 AA align

Score = 31.6 bits (67), Expect = 1.8
Identities = 10/11 (90%), Positives = 10/11 (90%)

```
Query: 1   STTINGEKVTL 11
           ST INGEKVTL
Sbjct: 297 STMINGEKVTL 307
```

tr Q54414 Q54414_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Marrtens]** 503 AA align

```
 Score = 31.6 bits (67), Expect = 1.8
 Identities = 10/11 (90%), Positives = 10/11 (90%)

Query: 1   STTINGEKVTL 11
           ST INGEKVTL
Sbjct: 296 STMINGEKVTL 306
```

```
Database: EXPASY/UniProtKB
    Posted date:  Jul 4, 2005  6:23 AM
  Number of letters in database: 659,769,346
  Number of sequences in database:  2,035,690

Lambda     K      H
   0.342    0.283     1.55

Gapped
Lambda     K      H
   0.294    0.110    0.610


Matrix: PAM30
Gap Penalties: Existence: 9, Extension: 1
Number of HSP's successfully gapped in prelim test: 0
length of query: 11
length of database: 659,769,346
effective HSP length: 2
effective length of query: 9
effective length of database: 655,697,966
effective search space: 5901281694
effective search space used: 5901281694
T: 16
A: 40
X1: 15 ( 7.4 bits)
X2: 35 (14.8 bits)
X3: 58 (24.6 bits)
S1: 40 (21.6 bits)
S2: 62 (29.5 bits)

Wallclock time: 2 seconds
```

J. Bacteriol., Sep 1993, 5359-5365, Vol 175, No. 17

Molecular analyses of the Salmonella g. . . flagellar antigen complex [published erratum appears in J Bacteriol 1994 May;176(9):2771]

BJ Masten and TM Joys
Department of Microbiology, School of Medicine, Texas Tech University Health Sciences Center, Lubbock 79430.

Salmonella flagellar filaments are polymers of a highly antigenic protein, termed flagellin. Eight main subfactors have been identified in the Salmonella phase-1 g. . . series flagellar antigen. To determine the molecular basis for expression of the epitopes by which the g. . . family subfactors are distinguished, 10 members of this series were selected and their fliC (the structural gene for phase-1 flagellin) genes were sequenced. Comparative analyses of the inferred primary structures of these flagellins did not allow the identification of linear epitopes responsible for the antigen subfactors. This suggests that conformational aspects are involved in determining the antigenic specificity in these cases. A phylogenetic analysis of the flagellin sequences showed that members of the g. . . series do not form a single coherent unit.

Amino acid sequence for SEF14:

1

MRKSASAVAVLALIACGSAHAAGFVGNKAEVQAAVTIAAQNTTSANW
SQDPGFTGPAVAAGQKVGTLSITATGPHNSVSIAGKGASVSGGVATVP
FVDGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASSQETLNVPVT
TFGKSTLPAGTFTATFYVQQYQN

165

Amino acid sequence for the C128 fragment of SEF14:

AAQNTTSANWSQDPGFTGPAVAAGQKVGTLSITATGPHNSVSIAGKGA
SVSGGVATVPFVDGQGQPVFRGRIQGANINDQANTGIDGLAGWRVASS
QETLNVPVTTFGKSTLPAGTFTATFYVQQYQN

(SEQ ID NO:3)

Amino Acid Sequence of *S.enteritidis* Flagellin Antigen

LTQNNLNKSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTS
NIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQD
EIQQRLEEIDRVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGLDG
FNVNGPKEATVGDLKSSFKNVTGYDTYAAGADKYRVDINSGAVVTDAAAPDKVYVNAA
NGQLTTDDAENNTAVDLFKTTKSTAGTAEAKAIRGAIKGGKEGDTFDYKGVTFTIDTK
TGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKNVYTSVVNGQFTFDDKT
KNESAKLSDLEANNAVKGESKITVNGAEYTANATGDKITLAGKTMFIDKTASGVSTLI
NEDAAAAKKSTANPLASIDSALSKVDAVRSSLGAIQNRFDSAITNLGNTVTNLNSARS
RIEDADYATEVSNMSKAQILQQAGTSVLAQANQVPQNVLSLLR
(SEQ ID NO:4)

90 amino acid fragment of *S. enteritidis* flagellin antigen

TAEAKAIRGAIKGGKEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA
TGATDVNAATLQSSKNVYTSVVNGQFTFDDKT
(SEQ ID NO:5)

highly conserved

fragment A: 69 amino acids (aa 258-327 of SEQ ID NO:4)

KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
VYTSVVNGQ
(SEQ ID NO:6)

fragment B: 40 amino acids (aa 276-316 of SEQ ID NO:4)

KTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQS
(SEQ ID NO:7)

fragment C: 27 amino acids (aa 279-306 of SEQ ID NO:4)

DGNGKVSTTINGEKVTLTVADIATGAT
(SEQ ID NO:8)

fragment D: 11 amino acids (aa 285-296 of SEQ ID NO:4)

STTINGEKVTL
(SEQ ID NO:9)

#3

SEQUENCE LISTING

<110> Kwang, Hwei-Sing
Liu, Wei
Low, Su-Shing Sharon
Loh, Hilda Kwanyeng

<120> Detection of Salmonella Enteritidis

<130> 2577-112

<150> PCT/SG99/00061
<151> 1999-06-22

<160> 19

<170> PatentIn version 3.1

<210> 1
<211> 505
<212> DNA
<213> Salmonella enteritidis

<400> 1
attttgtaat atgcgtaaat cagcatctgc agtagcagtt cttgctttaa ttgcatgtgg 60

cagtgcccac gcagctggct ttgttggtaa caaagcagag gttcaggcag cggttactat 120

tgcagctcag aatacaacat cagccaactg gagtcaggat cctggcttta cagggcctgc 180

tgttgctgct ggtcagaaag ttggtactct cagcattact gctactggtc cacataactc 240

agtatctatt gcaggtaaag gggcttcggt atctggtggt gtagccactg tcccgttcgt 300

tgatggacaa ggacagcctg ttttccgtgg gcgtattcag ggagccaata ttaatgacca 360

agcaaatact ggaattgacg ggcttgcagg ttggcgagtt gccagctctc aagaaacgct 420

aaatgtccct gtcacaacct ttggtaaatc gaccctgcca gcaggtactt tcactgcgac 480

cttctacgtt cagcagtatc aaaac 505

<210> 2
<211> 165
<212> PRT
<213> Salmonella enteritidis

<400> 2

Met Arg Lys Ser Ala Ser Ala Val Ala Val Leu Ala Leu Ile Ala Cys
1 5 10 15

Gly Ser Ala His Ala Ala Gly Phe Val Gly Asn Lys Ala Glu Val Gln

20 25 30

Ala Ala Val Thr Ile Ala Ala Gln Asn Thr Thr Ser Ala Asn Trp Ser
35 40 45

Gln Asp Pro Gly Phe Thr Gly Pro Ala Val Ala Ala Gly Gln Lys Val
50 55 60

Gly Thr Leu Ser Ile Thr Ala Thr Gly Pro His Asn Ser Val Ser Ile
65 70 75 80

Ala Gly Lys Gly Ala Ser Val Ser Gly Gly Val Ala Thr Val Pro Phe
85 90 95

Val Asp Gly Gln Gly Gln Pro Val Phe Arg Gly Arg Ile Gln Gly Ala
100 105 110

Asn Ile Asn Asp Gln Ala Asn Thr Gly Ile Asp Gly Leu Ala Gly Trp
115 120 125

Arg Val Ala Ser Ser Gln Glu Thr Leu Asn Val Pro Val Thr Thr Phe
130 135 140

Gly Lys Ser Thr Leu Pro Ala Gly Thr Phe Thr Ala Thr Phe Tyr Val
145 150 155 160

Gln Gln Tyr Gln Asn
165

<210> 3
<211> 128
<212> PRT
<213> Salmonella enteritidis

<400> 3

Ala Ala Gln Asn Thr Thr Ser Ala Asn Trp Ser Gln Asp Pro Gly Phe
1 5 10 15

Thr Gly Pro Ala Val Ala Ala Gly Gln Lys Val Gly Thr Leu Ser Ile
20 25 30

Thr Ala Thr Gly Pro His Asn Ser Val Ser Ile Ala Gly Lys Gly Ala

35 40 45

Ser Val Ser Gly Gly Val Ala Thr Val Pro Phe Val Asp Gly Gln Gly
50 55 60

Gln Pro Val Phe Arg Gly Arg Ile Gln Gly Ala Asn Ile Asn Asp Gln
65 70 75 80

Ala Asn Thr Gly Ile Asp Gly Leu Ala Gly Trp Arg Val Ala Ser Ser
85 90 95

Gln Glu Thr Leu Asn Val Pro Val Thr Thr Phe Gly Lys Ser Thr Leu
100 105 110

Pro Ala Gly Thr Phe Thr Ala Thr Phe Tyr Val Gln Gln Tyr Gln Asn
115 120 125

<210> 4
<211> 493
<212> PRT
<213> Salmonella enteritidis

<400> 4

Leu Thr Gln Asn Asn Leu Asn Lys Ser Gln Ser Ser Leu Ser Ser Ala
1 5 10 15

Ile Glu Arg Leu Ser Ser Gly Leu Arg Ile Asn Ser Ala Lys Asp Asp
20 25 30

Ala Ala Gly Gln Ala Ile Ala Asn Arg Phe Thr Ser Asn Ile Lys Gly
35 40 45

Leu Thr Gln Ala Ser Arg Asn Ala Asn Asp Gly Ile Ser Ile Ala Gln
50 55 60

Thr Thr Glu Gly Ala Leu Asn Glu Ile Asn Asn Asn Leu Gln Arg Val
65 70 75 80

Arg Glu Leu Ser Val Gln Ala Thr Asn Gly Thr Asn Ser Asp Ser Asp
85 90 95

Leu Lys Ser Ile Gln Asp Glu Ile Gln Gln Arg Leu Glu Glu Ile Asp

L4: Entry 49 of 60 File: USPT Apr 23, 1996

DOCUMENT-IDENTIFIER: US 5510241 A
TITLE: Method of testing for the presence of Salmonella serotypes expressing Salmonella enteritidis fimbrial antigen (SEFA) and reagents therefore

Detailed Description Text (25):
Electron microscope studies confirmed that MAB 69/25 is directed against an epitope on a fimbrial structure expressed on the bacterial surface that is morphologically distinct from flagellae and the larger type 1 fimbriae. This structure was observed only on Salmonella strains that reacted in direct binding ELISAs and these strains were labelled when examined by immune EM.

Previous Doc Next Doc Go to Doc#

DOCUMENT-IDENTIFIER: US 20020048562 A1
TITLE: TOLEROGENIC FUSION PROTEINS OF IMMUNOGLOBULINS AND METHODS FOR INDUCING AND MAINTAINING TOLERANCE

Detail Description Paragraph:
[0105] To determine whether the 12-26 IgG1 fusion protein can induce B-cell tolerance, the following experiment was conducted. Mouse spleen cells were cultured in vitro in RPMI-1640+5% FCS for 18 hours. The mouse spleen cells were then incubated with increasing concentrations of either free 12-26 peptide, a chemical conjugate of rabbit gamma globulin with 12-26 (RGG-122-26) or with 12-26-IgG1 (Q3). At 18 hours, these spleen cells were washed and then challenged with either lipopolysaccharide (a mitogenic stimulus, not shown) or the A29 fusion protein of Salmonella flagellin that contains the 12-26 peptide. The Salmonella flagellin fusion protein containing the 12-26 epitope has been shown previously to be immunogenic both in vivo and in vitro (data not shown). As a control for induction of tolerance, spleen cells were treated with a rabbit anti-immunoglobulin previously shown to induce unresponsiveness in vitro. G. Warner et al., J. Immunol., 146:2185 (1991). The effect of anti-Ig is shown as an open circle on the right end of each graph. The responsiveness of the cells was measured by ELISA. The results are shown as FIG. 4 (A29 fusion protein with 12-26 peptide challenge).

DOCUMENT-IDENTIFIER: US 20050068040 A1
TITLE: High efficiency electrostatic air sampler

Detail Description Paragraph:
[0055] Yolks from eggs collected immediately before inoculation and at weekly intervals after inoculation were tested for the presence of antibodies specific to S. enteritidis flagella by an enzyme-linked immunosorbent assay (ELISA) developed by Holt and Porter (Poultry Science, Volume 72, 2069-1078, 1993) and described previously (Gast et al., Poultry Sciences, Volume 81, 1128-1131, 2002). Post inoculation egg yolk samples were considered to be antibody-positive in this test if their ELISA absorbance values exceeded the mean absorbance value for the preincubation negative control samples by more than two standard deviations.

DOCUMENT-IDENTIFIER: US 20040120962 A1
TITLE: Modulation of immune responses to foreign antigens expressed by recombinant attenuated bacterial vectors

Summary of Invention Paragraph:
[0015] 3. Robertson J. M., G. Grant, E. Allen-Vercoe, M. J. Woodward, A. Pusztai, and H. J. Flint. 2000. Adhesion of Salmonella enterica var Enteritidis strains lacking fimbriae and flagella to rat ileal explants cultured at the air interface or submerged in tissue culture medium. J. Med. Microbiol. 49:691-696.

Summary of Invention Paragraph:
[0027] 13. Liaudet L., K. G. Murthy, J. G Mabley, P. Pacher, F. G. Soriano, A. L. Salzman, and C. Szabo. 2002. Comparison of inflammation, organ damage, and oxidant stress induced by Salmonella enterica serovar Muenchen flagellin and serovar Enteritidis lipopolysaccharides. Infect. Immun. 70:192-198.

Summary of Invention Paragraph:
[0029] 15. Parker C. T., and J. Guard-Petter. 2001. Contribution of flagella and invasion protein to pathogenesis of Salmonella enterica serovar enteritidis in chicks. FEMS Microbiol. Lett. 204:287-291.

Summary of Invention Paragraph:
[0032] 18. Ogushi K., A. Wada, T. Niidome, N. Mori, K. Oishi, T. Nagatake, A. Takahashi, H. Asakura, S. Makino, H. Hojo, Y. Nakahara, M. Ohsaki, T. Hatakeyama, H. Aoyagi, H. Kurazono, J. Moss, and T. Hirayama. 2001. Salmonella enteritidis FliC (flagella filament protein) induces human beta-defensin-2 mRNA production by Caco-2 cells. J. Biol. Chem. 276:30521-30526.

DOCUMENT-IDENTIFIER: US 20040052802 A1
TITLE: Salmonella vaccine

Detail Description Paragraph:
[0041] Two weeks after challenge, all chickens were necropsied and spleens, cloacal swabs and the caecum contents were cultured for the challenge strain. Direct inoculation on Brilliant Green Agar plates containing naladixic acid (BGA) and plating after enrichment in buffered peptone water containing naladixic acid was performed. Identity of S. enteritidis isolates was confirmed by agglutination with flagellum specific antiserum.

DOCUMENT-IDENTIFIER: US 20010021386 A1
TITLE: Salmonella vaccine

Summary of Invention Paragraph:
[0008] When searching for suitable marker antigens, all known Salmonella antigens are to be considered. A known antigen found with all wild type Salmonella species with the exception of some S. pullorum and gallinarum subspecies is the flagellum. Examples of Salmonella species carrying flagella when in their wild type form are S. typhimurium, enteritidis, choleraesuis, dublin, typhi, abortus-ovi, abortus-equi, paratyphi A and B, derby, hadar, heidelberg, agona and arizonae. Flagella are long structures protruding from the cell surface, that play an important role in motility and invasion of certain host cells. Flagella consist of long polymers of the protein called flagellin. It is known that these flagella induce high levels of antibodies. It also known that the absence of flagella does not significantly impair the viability of the bacterium outside the host; flagella-less mutants of practically all Salmonella species are known and can be grown in vitro. Nevertheless, flagellar proteins of Salmonella have never been contemplated as suitable markers, since they do not or only partially fulfill three of the four marker-requirements:

Summary of Invention Paragraph:
[0017] From a practical point of view, it may however be desirable to delete (part of) the whole flagellin gene from the bacteria to be used in the vaccine, simply by deletion of the gene encoding the flagellar protein. The genes encoding the flagellar proteins of the various Salmonella species are known. They are all very closely related, and therefore highly homologous. Flagellin genes have i.a. been described for Salmonella enterica (Li, J. et al., Proc. Natl. Acad. Sci. 91, 2552-2556 (1994)), Salmonella enteritidis (Selander, R. K. et al., J. Bacteriol. 174, 3587-3592 (1992)), Salmonella dublin (Masten, B. J. and Joys, T. M., J. Bacteriol. 175, 5359-5365 (1993)), Salmonella typhimurium (de Vries, N. et al., Appl. Environ. Microbiol. 64, 5033-5038 (1998)), Salmonella abortus-equi (Hanafusa, T. et al., Mol. Gen. Genet. 236, 260-266 (1993)). Flagellin genes of novel Salmonella species can easily be found on the basis of their homology with all existing and known Salmonella flagellin genes: standard hybridisation techniques suffice for locating the flagellin gene.

Detail Description Paragraph:
[0057] Vaccines were prepared from a flagellated and a non-flagellated S. enteritidis (S.e.) phage type 4 strain. The bacteria were cultured in Tryptose Phosphate Broth, inactivated by the addition of formalin to a final concentration of 0.5%, followed by harvest of the bacterial cells by centrifugation. The cells were resuspended in phosphate buffer saline and formulated into water in oil emulsion vaccines at 5.times.10.sup.9 bacteria/ml. Five chickens were injected intramuscularly with the S.e. fla.sup.+ vaccine and 5 chickens received the S.e. fla.sup.- vaccine. The animals were vaccinated with 0.5 ml vaccine at 14 and 18 weeks of age. At 22 weeks of age, the chickens were bled, and serum was tested in a double antibody sandwich blocking ELISA system specific for antibodies to the g,m flagellin of S.e. (Zijderveld, F. G. van et al. (1993) Vet. Quart. 15, 135-137)

DOCUMENT-IDENTIFIER: US 5807694 A
TITLE: Detection of salmonella enteritidis and other pathogenic microorganisms and monoclonal antibody useful therefor

Brief Summary Text (8):
Infection by Salmonella enteritidis threatens the safety of human consumers and the economic soundness of the egg and poultry industry, as well as the food industry in general. The severe outbreak of this organism in 1988 alone in Britain resulted in a permanent 20% loss in volume of the egg market (U.S. Department of Agriculture, Salmonella enteritidis Task Force (1990)). Its control and elimination requires early detection in raw shell eggs. Traditional methods for detection of Salmonella enteritidis in eggs are scarce and require up to one week in order to culture and identify bacterial isolates. These methods are also labour-intensive, involve isolation of the organism using pre-enrichment as well as selective enrichment procedures and serological confirmation tests (Van der Zee, Int. J. Food Microbiol. (1994)21:41). More rapid methodology available for serological detection of Salmonella enteritidis is represented by two basic enzymatic-linked immunoassay (ELISA) procedures, the sandwich and indirect ELISA. Both employ antisera as well as monoclonal antibodies produced against flagella, lipopolysaccharides (LPS) and fimbriae SEF14 (Van Zijderveld et al., J. Clin. Microbiol. (1992) 30:2560). In contrast to conventional methods, these tests can detect Salmonella enteritidis in two days. However, they are not free of drawbacks. The tests involve time-consuming enrichment incubations, exhibit varying degrees of cross-reactions, particularly between serogroup B (S. typhimurium) and D lipopolysaccharides and both systems have been known to produce false positive reactions.

DOCUMENT-IDENTIFIER: US 5750115 A
TITLE: Escherichia coli vaccine

Other Reference Publication (1):
H.T. Campbell et al., "Immunization with Flagella or Anti-Flagella Sera Protects Mice Against Salmonella-enteritidis", Absts. Ann. Meeting Am. Soc. Microbiol. 72: 101, Abst. M131, Apr. 1972.

DOCUMENT-IDENTIFIER: US 5674495 A
TITLE: Alginate-based vaccine compositions

Detailed Description Text (43):
To assess the efficacy of vaccinating chickens with the vaccine compositions of the present invention the flagellin of S. enteritidis, a key immunogen, was incorporated within alginate microspheres and administered orally to chicks. Ten-week old chickens received 3 oral doses at 2 week intervals of aliginated gel microspheres loaded with either 300 .mu.g of flagellin antigen of Salmonella enteritidis or bovine serum albumin (BSA). One week after the last oral dose of antigen, serum and intestinal fluid were collected and assayed for flagellin specific antibodies by ELISA.

Detailed Description Text (45):
Results showed no significant difference in antibody titers to flagellin between groups of birds. However, the flagellin vaccinated birds had significantly increased DTH response. The flagellin vaccinated chickens had a mean toe web thickness of 38.0.+-.6.3 and the control birds had a mean of 7.0.+-.2.3 mm. This is unexpected for immunization using a soluble antigen such as flagellin. However, incorporation of the flagellin within the microspheres would change the presentation of the antigen making it more particulate and stimulating a MHC I response characterized by the increased DTH. This is an important immune response for this disease since S. enteritidis invades leukocytes and is retained for long term infection within these cells. Only cell mediated immunity such as DTH can help a bird clear this long term carrier state.

DOCUMENT-IDENTIFIER: US 5902742 A
TITLE: Complex growth supplement for maintenance of bacterial cell viability and induction of bacterial cell differentiation

Brief Summary Text (6):
For example, rapid and reliable detection of Salmonella serotypes is important for determining the presence of Salmonella in food and animals, such as for example, chickens used for egg production. Standard methods for Salmonella detection are often not sensitive enough to consistently detect the presence of Salmonella serotypes in all instances. Fowl salmonellosis caused by Salmonella enterica var. Gallinarium and Pullorum are diseases of world wide significance in the poultry industry. Since its recognition as an infectious agent nearly 100 years ago, Salmonella enterica var. Pullorum has been classified as a non-motile, aflagellate chicken pathogen (Retter, N.Y. Med. J., Volume 71, 803,1990; Edwards et al, Identification of Enterobacteriaceae, Burgess Publishing Company, Minneapolis, Minn., 1962). It is particularly capable of contaminating eggs via the reproductive organs of hen (Snoeyenbos, Diseases of Poultry, ninth edition; Ed.: B. W. Calnek; 73-86, 1991). In the United States, S. enterica var. Pullorum was a major problem in the poultry industry earlier this century. The problem decreased following implementation of rigorous serological screening and depopulation of serologically positive flocks. Serological surveillance has been the primary method of keeping S. enterica var. Pullorum in check. However, problems have begun to erupt in a number of United States flocks and indications are that the standard tests for S. enterica var. Pullorum, such as the agglutination assays, are not detecting some infected flocks. Currently, S. enterica var. Enteritidis is the cause of a world-wide increase of salmonellosis in people due to its ability to colonize the reproductive organs of chickens and to contaminate eggs. S. enterica var. Enteritidis has the same lipopolysaccharide (LPS) D1 serotype as S. enterica var. Pullorum, but it is commonly flagellated and produces flagellar H-antigens that are used in a diagnostic scheme to differentiate it from other salmonellae (Edwards, supra). Glycosylated, high-molecular weight (HMW) O-antigen distinguishes virulent strains (Petter, Appl. Env. Microbiol., Volume 59, 2884-2890, 1993; Guard-Petter et al, Appl. Env, Microbiol., Volume 61, 2845-2851, 1995; Guard-Petter et al, Epid. Infec., 1996, In Press; R. Carlson, personal communication). This type of O-antigen structure contributes to the ability of S. enterica var. Enteritidis to hyperflagellate and migrate across a 2% agar surface, but this distinctive phenotype is transient and is lost upon passage and storage (Guard-Petter et al, 1995, supra; Guard-Petter et al, 1996, supra). Hyperflagellation has been described as an outer membrane change that occurs with the differentiation of vegetative bacteria into swarm cells (Allison et al, Molec. Microbiol., Volume 169, 1155-1158, 1994; Allison et al, Infec. Immun., Volume 60, 4740-4746, 1992). A genetic analysis of E. coli and S. enterica var. Typhimurium indicated that swarm cell differentiation could be observed in soft agar (Harshay et al, PNAS, USA, Volume 91, 8631-8635, 1994). A correlation between differentiation and virulence has been described for the urinary tract pathogen Proteus mirabilis (Allison et al, 1994, supra; Allison et al, 1992, supra) where other virulence factors such as toxins and metalloproteases are transcriptionally upregulated at the same time as flagellin. To date, a relationship between virulence and hyperflagellation for S. enterica var. Enteritidis has been made only in those strains that swarm on 2% agar surfaces, because even avirulent rough and semismooth strains of S. enterica var. Enteritidis produce flagella and are motile in soft agar (Guard-Petter et al, 1996, supra). These emerging concepts suggest that at least some aspects of swarm cell differentiation might be involved in the ability of S. enterica var. Enteritidis to contaminate eggs. However, evidence against an association between swarm cell differentiation and egg contamination exists. S. enterica var. Pullorum efficiently contaminates eggs while S. enterica var. Enteritidis does so sporadically (Snoeyenbos, 1991, supra; Shivaprasad et al, Avian Dis., Volume 34, 548-557, 1990; Humphrey et al, Epidemiol. Infect., Volume 106, 489-496, 1991; Keller et al, Infec. Immun., Volume 63, 2442-2449, 1995). Since S. enterica var. Pullorum is historically aflagellate it was considered that either a) the ability to flagellate and undergo swarm cell differentiation was not involved in establishing invasive infections, or b) cellular differentiation of S. enterica var. Pullorum was inhibited.

Drawing Description Text (2):
FIGS. 1A-1K are scanning electron micrographs of S. enterica vars. Pullorum and Enteritidis before and after glucose supplementation. FIGS. 1A and 1C are S. enterica vars. Pullorum and Enteritidis, respectively, grown without supplementation. FIGS. 1B and 1D are S. enterica vars. Pullorum and Enteritidis, respectively, grown with 100 mM glucose on 1.4% HEA media for 40 hours for Pullorum and 16 hours for Enteritidis. FIGS. 1D and 1E show that bundled structures on S. enterica var. Enteritidis composed primarily of flagellin are evident. FIG. 1F shows hyphae production by S. enterica var. Enteritidis. Hyphae extend beyond the edge of the colony and turn agar opaque. FIG. 1G show S. enterica var. Enteritidis grown with 100 mM Glutamine. FIG. 1H shows S. enterica var. Enteritidis grown with 100 mM N-acetylglucosamine. FIG. 1I shows S. enterica var. Enteritidis grown with 100 mM proline. FIG. 1J shows S. enterica var. Enteritidis grown with 100 mM proline and 100 mM N-acetylglucosamine. FIG. 1K shows S. enterica var. Enteritidis grown with 100 mM glutamine and 100 mM N-acetylglucosamine. Scale bar at the upper left corner of FIG. 1A is 1 .mu.m and is the same for FIGS. 1B-1K. FIG. 1E is reduced 33%.

Drawing Description Text (3):
FIGS. 2A-2C are photographs of glucose supplemented S. enterica var. Enteritidis at different concentrations of glucose supplementation. FIG. 2A shows that using 10 mM glucose produces black colonies (top) and 100 mM glucose produces yellow/orange colonies (bottom; shown as light color colonies in black and white photograph). FIG. 2B shows that using 50 mM glucose produces mixed patterns of black and yellow colonies if air passes over the plate surface. FIG. 2C shows a stable mutant black colony phenotype as identified on screening plates of HEA supplemented with 100 mM maltose after chemical mutagenesis with MNNG. The opaque area between colonies is due to flagella permeating the agar between colonies while agar around mutant remains clear.

Drawing Description Text (4):
FIG. 3 is a photograph of a polyacrylamide gel showing flagellin isotypes as detected in coomasie stained polyacrylamide gels. 60, 54 and 50 kDa from top to bottom are indicated. Molecular weight markers (right most edge) are phosphorylase B (97.4 kDa). Bovine serum albumin (68 kDa) and ovalbumin (43 kDa). Cultures were supplemented as follows from Lane 1 to Lane 6: 10 mM glucose, 100 mM glucose, 200 mM glucose, 10 mM maltose, 100 mM maltose, 200 mM maltose. Cultures for lanes D3 and E3 (200 mM glucose) were not done. (A-C) Pullorum/Gallinarum strain PC CP5-5298E and Pullorum strains 1950 and 1268 (J. deGraft-Hanson and G. Stein, Maryland Department of Agriculture, Animal Health Department, P.O. Box J, Salisbury, Md. 21802); (D) smooth Enteritidis (J. Guard-Petter, Athens, Ga.); (F) Typhimurium LT2 (J. Roth, 201 S. Biology, Univ. Of Utah, Salt Lake City, Utah 84112).

Drawing Description Text (5):
FIGS. 4A and 4B are photographs of a polyacrylamide gel showing H- and O-antigen immunoreactivity of salmonellae flagellin after metabolite supplementation. (FIG. 4A) H-antigen reactive cell surface material. Lanes 1-3: Typhimurium LT2, 100 mM glucose; rough Enteritidis, 10 mM maltose; and Pullorum, 100 mM glucose. Arrows indicate 60, 54 and 50 kDa form top to bottom. (FIG. 4B) D1 O-antigen reactive cell surface material. Lanes 1 and 2, serovar B Typhimurium LT2, 100 mM glucose; Lanes 3 and 4, serovar D1 Enteritidis, 10 mM maltose; Lanes 5 and 6, rough Enteritidis, 100 mM maltose. A(+) indicates samples that were hydrolyzed with bacteriophage P22 endorhamnosidase to specifically remove free O-antigen in order to improve visualization of the 50 kDa flagellin isotype that is cross-reactive with the D1 antiserum (Difco) used as primary antibody.

Detailed Description Text (19):
Scanning electron microscopy (SEM) of Pullorum indicates that cells grown without 100 mM

metabolite were short, misshaped and often lysed. Supplemented cells are rod-shaped, produced surface appendages and were less likely to lyse (FIGS. 2A and 2B). Supplementation of Enteritidis with 100 mM of the above listed metabolites produce dramatic hyperflagellation (FIGS. 2C and 2D). In addition to a peritrichous distribution, flagella sometimes formed bundles on cells when hyperflagellation occurred. Flagella within bundles are either "curly" or "rigid" (FIGS. 2D and 2E).

Detailed Description Text (21):
Variations exist in the response of different serovars and strains of a single serovar to supplementation especially in broth. In general, broth supplementation with either glucose or maltose at 10 mM or 100 mM is a sufficient range of metabolites to identify conditions that enhance flagellation (FIG. 3). Flagellin recovered from cells grown in broth is detected in polyacrylamide gels at 60, 54 and 50 kDa. N-terminal amino acid sequencing confirms that all three bands have the conserved Salmonella fliC N-terminus, (J. Li, et al., J. of Med. Microbiol., v. 38, pp. 129-139, 1993; Li et al., PNAS, USA, vol. 91, pp. 2552-2556, 1994) and thus these molecules are isotypes of flagellin. The 60 kDa isotype is the most common recovered from the cell surface of the three strains of Pullorum obtained from chickens and eggs as described in Example 1, although one condition is identified that yields the 50 kDa isotype in one of three strains (FIG. 3). Isotypes 60 and 54 kDa are recovered from a rough strain of Enteritidis, whereas little of the 50 kDa isotype could be detected in Coomasie stained polyacrylamide gels (FIG. 3). The 60 and 50 kDa isotypes are the most prevalent isotypes recovered from Typhimurium (FIG. 3). A smooth strain of Enteritidis was the only serovar to produce copious amounts of the 54 kDa isotype (FIG. 3). These results indicate that the prevalence of flagellar isotypes varied in response to environmental conditions in broth.

Detailed Description Text (22):
Although there is a small chance that the 60 kDa flagellin isotype is transcribed from a different gene than fliC, it is more probable that the electrophoretic differences between flagellin isotypes are due to interactions with charge and molecular weight variants of smooth lipopolysaccharide. Monoclonal antibodies were previously used to describe an intermolecular interaction between the 60 kDa flagellin isotype with smooth lipopolysaccharide (Guard-Petter et al, 1996, supra) whereas a polyclonal antiserum is required here to detect all three of the flagellin isotypes. The only commonly encountered non-stoichiometric modification to LPS that is known to increase the number of negative charges is phosphorylation. Mutants in the phosphorylating enzyme RfaP have been shown by others to affect the activity of outer membrane proteins as well as the structure of lipopolysaccharide (Parker et al, J. Bacteriol., volume 174, 2525-2538, 1992; Schnaitman et al, Microbiol. Rev., Volume 57, 655-682, 1993; Reeves, Biosynthesis and assembly of lipopolysaccharide. In Bacterial Cell Wall, Ghysen et al (Eds.), Volume 27, Chap. 13, 281-317, 1994; Stanley et al, Mol. Microbiol., Volume 10, 781-788, 1993). Pullorum is non-motile in standard sort-agar motility assays which suggests that the 60 kDa isotype might not contribute to motility. In other studies, the appearance of the 60 kDa isotype in Enteritidis is associated with an enhanced ability of cells to withstand environmental insults such as heat, acid and oxidizing reagents (Guard-Petter et al, 1996, supra; Humphrey et al, Epidemiology and Infection, 1996, In Press). The 54 kDa isotype has been most associated in Enteritidis with the ability to swarm and to produce copious amounts of peritrichous flagella (Guard-Petter et al, 1996, supra). A possible role for the 50 kDa isotype is that it might contribute to the formation of aggregated flagellar structures that are associated with invasiveness of the mucosal epithelium. In any case, it is possible that host-adapted Pullorum requires additional signals for differentiation from the chicken itself in order to finish its development in vivo.

Detailed Description Text (26):
does not usually react with factor 7, var. Thompson does not usually react with factors 2, 6 and 7; and var. Senftenberg does not usually react with factor 6. Enteritidis immunoreactivity was dependent on phage type (Table 2) and phage types 4, 8 and virulent strains of pt 13A were less reactive to H-antigen

factors 5, 6 and 7 than were rough and avirulent pt 13A strains. Other D1 serovars not associated with contamination of eggs lacked immunoreactivity with factors 5, 6 and 7, whereas Pullorum immunoreactivity closely resembled that of less virulent strains of Enteritidis. These results indicate that considerable flagellin epitope variation exists even between isogenic variants of a single serovar, whereas other epitopes are conserved between serovars. These findings are in agreement with the fliC gene arrangement, where N- and C-terminal regions are highly conserved among enteric organisms and the middle region is highly variable (MacNab, Ann. Rev. Genet., Volume 26, 131-158, 1992; Raha et al, J. Gen. Microbiol., Volume 139, 1401-1407, 1993; Kilger et al, J. Clin. Microbiol., Volume 31, 1108-1110, 1993; all herein incorporated by reference).

Detailed Description Text (28):
A molecular basis for the cross-reactivity of H-antigens appears to be an interaction between lipopolysaccharide and flagellin. To investigate this interaction, ammonium sulfate precipitated cell surface material recovered from vortexed cells is immunoblotted using flagellin H-antigen typing antisera G-complex, poly B and poly a-z as primary antisera. Primary antisera is diluted 1:250 in phosphate buffered saline (PBS) and secondary antibody is goat anti-rabbit alkaline phosphate labeled IgG (Pierce) diluted 1:2500. Samples are transferred to nitrocellulose membranes from 10% to 16% polyacrylamide gels prepared according to standard techniques (Laemmli, Nature, Volume 227, 680-685, 1970; Towbin et al PNAS, USA, Volume 76, 4350-4354, 1979, 19; herein incorporated by reference). Typhimurium LT2, Enteritidis, and Pullorum were cultured on HEA at 37.degree. C. for 16 hours (40 hours for Pullorum) supplemented with either 100 mM glucose, 10 mM maltose or 100 mM maltose. Similar results are obtained from all three antisera and show that 1) metabolite supplementation results in detection of an LPS O-antigen ladder for a rough Enteritidis and smooth Pullorum, but not serovar B Typhimurium; 2) metabolite supplementation results in detection of 60 and 50 kDa flagellin isotypes but they often appear as negative or masked bands on immunoblots, and 3) a 54 kDa flagellin band is detectable as a positive band for group B and D1 serovars (FIG. 4A). In addition to H-antigen serotyping, D1 O-antigen antiserum is used for immunoblotting. As expected, an O-antigen ladder was detected for homologous smooth Enteritidis that was not detected for heterologous Typhimurium and rough Enteritidis. However, an unexpected result was that D1 O-antigen detected the 50 kDa flagellin isotype of smooth and rough Enteritidis (FIG. 4B). The rough strain in these studies was isogenic to smooth Enteritidis and had seroconverted to a positive D1 O-antigen slide agglutination reaction when it was supplemented. Thus metabolite supplementation enhances production of smooth LPS which forms an association with flagella that affects the immunoreactivity of both molecules.

Vet Rec. 1996 Feb 17;138(7):149-53. Related Articles, Links

Evaluation of SEF14 fimbrial dot blot and flagellar western blot tests as indicators of Salmonella enteritidis infection in chickens.

Cooper GL, Thorns CJ.

Veterinary Laboratories Agency, New Haw, Addlestone, Surrey.

The serological responses to Salmonella enteritidis flagella (H: g,m) and its fimbrial antigen SEF14 were evaluated as indicators of infection in chickens and to confirm serological results obtained by an ELISA using S enteritidis lipopolysaccharide (LPS) (O: 9,12) as the detecting antigen. The SEF14 antigen and flagella were extracted from S enteritidis and transferred to nitrocellulose paper for use in Western and dot blot tests. Antisera to 19 salmonella serotypes including S enteritidis were raised in rabbits and their cross reactivity to the flagellar and SEF14 antigens was evaluated. Cross reactivity with the SEF14 antigen was found in one antiserum, raised against S blegdam, and to flagella in eight of 19 antisera raised against various salmonella serotypes, most of which shared the flagellar factors g or m with S enteritidis. The intensity of cross reaction to flagella was strongest in S derby and S blegdam antisera. Antisera raised in chickens against S typhimurium and S panama did not cross react in either test, and neither did pooled sera from eight-week-old salmonella-free, broiler breeder parent chickens. Field sera from two commercial flocks with no history of salmonella infection were negative when tested by the LPS ELISA. These sera were also negative when tested by the flagellar and SEF14 blots. S enteritidis infection in a commercial laying flock was detected initially when the sera were tested by the LPS ELISA and confirmed in individual and pooled sera by the SEF14 and flagellar tests. S enteritidis PT4 was isolated from this flock post mortem.

PROTEIN SEQUENCE.
PubMed=7960117 [NCBI, ExPASy, EBI, Israel, Japan]
Ogunniyi A.D., Manning P.A., Kotlarski I.;
"A Salmonella enteritidis 11RX pilin induces strong T-lymphocyte responses.";
Infect. Immun. 62:5376-5383(1994).

==========

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

Query: 89 AA (of which 18% low-complexity regions filtered out)
Date run: 2005-07-06 11:52:43 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

SBQ IDS

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to...

☐ Include query sequence

	Db	AC	Description	Score	E-value
☐	sp	Q06973	FLIC_SALMO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	141	3e-33
☐	sp	Q06972	FLIC_SALEN Flagellin (Phase-1-C flagellin) [fliC] [Sal...	141	3e-33
☐	tr	Q53WZ9	_SALEN Phase 1 flagellin [fliC] [Salmonella enteritidis]	141	3e-33
☐	tr	Q6V2W5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	141	3e-33
☐	tr	Q6V2V9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	141	3e-33
☐	tr	Q66PR7	_SALMO Phase 1 flagellin [fliC] [Salmonella montevideo]	141	3e-33
☐	tr	Q6LDG7	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	141	3e-33
☐	tr	Q6LDG6	_SALET Phase-1 flagellin [fliC1] [Salmonella enterica s...	141	3e-33
☐	tr	Q66PR6	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	141	3e-33

tr	Q66PN4	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	141	3e-33
tr	Q66PN3	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	141	3e-33
tr	Q54210	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	141	3e-33
tr	Q53998	_SALEN Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	141	3e-33
tr	Q54864	_SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	140	8e-33
tr	Q54863	_SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	140	8e-33
tr	Q54329	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	139	1e-32
tr	Q53989	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	139	1e-32
tr	Q53970	_SALDU Phase-1 flagellin [fliC1] [Salmonella dublin]	139	1e-32
tr	Q53967	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	139	1e-32
tr	Q53822	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	139	1e-32
tr	Q79DB7	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	139	1e-32
tr	Q6V2W1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	139	1e-32
tr	Q57381	_SALEN Phase-1 flagellin [fliC1] [Salmonella enteritidis]	139	1e-32
tr	Q6V2U9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	139	2e-32
tr	Q53993	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	138	2e-32
sp	O52959	FLIC_SALNA Phase-1 flagellin [fliC] [Salmonella naestved]	137	5e-32
sp	Q06971	FLIC_SALDU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	137	5e-32
tr	Q6V2V3	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	137	5e-32
tr	Q66PR3	_SALDU Phase 1 flagellin [fliC] [Salmonella dublin]	137	5e-32
tr	Q6V2V2	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	137	5e-32
tr	Q66PR5	_SALNA Phase 1 flagellin [fliC] [Salmonella naestved]	137	5e-32
sp	Q06981	FLIC_SALMC Flagellin (Phase-1-D flagellin) [fliC] [Sal...	137	7e-32
tr	Q66PR2	_SALMC Phase 1 flagellin [fliC] [Salmonella moscow]	137	7e-32
tr	Q6V2V0	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	137	7e-32
sp	Q06982	FLIC_SALRO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	135	1e-31
tr	Q66PR4	_SALRO Phase 1 flagellin [fliC] [Salmonella rostock]	135	1e-31
tr	Q6V2V1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	135	1e-31
tr	Q6V2V5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	135	2e-31
sp	Q06968	FLIC_SALBE Flagellin (Phase-1-I flagellin) [fliC] [Sal...	130	6e-30
tr	Q6V2H1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	130	6e-30
tr	Q53583	_SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	130	6e-30
sp	Q06970	FLIC_SALDE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	129	1e-29
tr	Q53991	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	129	1e-29
tr	Q6V2X1	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	129	1e-29
tr	Q66PR8	_SALDE Phase 1 flagellin [fliC] [Salmonella derby]	129	1e-29
tr	Q6V2W8	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	129	1e-29
tr	Q66PS0	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	129	1e-29
tr	Q66PQ9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	129	1e-29
tr	Q66PQ8	_SALEE Phase 1 flagellin [fliC] [Salmonella enterica VI...	129	1e-29
tr	Q53996	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	129	1e-29
tr	Q6V2G9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	128	2e-29
tr	Q66PR9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	128	2e-29
tr	Q53990	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	128	2e-29
tr	Q53992	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	128	3e-29

☐	tr Q54489 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	127	7e-29
☐	tr Q6V2U0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	127	7e-29
☐	tr Q66PR1 _SALSE Phase 1 flagellin [fliC] [Salmonella senftenberg]	126	1e-28
☐	tr Q54414 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	125	3e-28
☐	sp Q06983 FLIC_SALSE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	124	4e-28
☐	sp Q06969 FLIC_SALBU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	124	4e-28
☐	tr Q66PR0 _SALBU Phase 1 flagellin [fliC] [Salmonella budapest]	124	4e-28
☐	tr Q6V2X0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	124	4e-28
☐	tr Q6V2U7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	124	4e-28
☐	tr Q6V2U6 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	124	4e-28
☐	tr Q6LD27 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	124	4e-28
☐	tr Q53995 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	123	8e-28
☐	tr Q6V2V7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	120	5e-27
☐	tr Q53994 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	119	1e-26
☐	tr Q6V2T7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	118	3e-26
☐	tr Q6V2G8 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	117	4e-26
☐	sp Q06974 FLIC_SALON Flagellin (Phase-1-C flagellin) [fliC] [Sal...	117	5e-26
☐	tr Q6V2U1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	117	5e-26
☐	tr Q6LD24 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	117	5e-26
☐	tr Q54415 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	117	5e-26
☐	tr Q53821 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	117	5e-26
☐	tr Q6V2G7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	116	1e-25
☐	tr Q6V2U4 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	115	2e-25
☐	tr Q6V2U3 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	115	2e-25
☐	tr Q54515 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	112	2e-24
☐	tr Q9R2V0 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	93	1e-18
☐	tr Q5G1R0 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	89	2e-17
☐	tr Q5G1Q9 _SALPU FliC (Fragment) [fliC] [Salmonella pullorum]	82	2e-15
☐	tr Q9R405 _SALGL Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	82	3e-15
☐	tr Q9R406 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	80	7e-15
☐	tr Q5G1Q8 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	75	3e-13
☐	tr Q8GGH8 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	39	0.025
☐	tr Q88YG6 _LACPL Cell surface protein [lp_0800] [Lactobacillus pl...	37	0.094
☐	tr Q8GGI2 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	37	0.094
☐	tr Q5ECK7 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	37	0.12
☐	tr Q52R20 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	37	0.12
☐	tr Q842D4 _ECOLI FliC (Fragment) [Escherichia coli]	37	0.12
☐	tr Q5ECJ1 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	37	0.12
☐	tr Q5ECI9 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	37	0.12
☐	tr Q9R3Q8 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	37	0.12
☐	tr Q8GGI1 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	37	0.12
☐	tr Q6VMV6 _ECOLI Flagellin [fliC] [Escherichia coli]	37	0.12
☐	tr Q6VMU9 _ECOLI Flagellin [fliC] [Escherichia coli]	37	0.12
☐	tr Q5ZPZ4 _ECOLI Flagellin C (Fragment) [fliC] [Escherichia coli]	37	0.12
☐	tr Q842D6 _ECOLI FliC (Fragment) [Escherichia coli]	35	0.36

☐ tr Q76DK5 _SALET Phase II flagellin [fljB] [Salmonella enterica s... 35 0.36

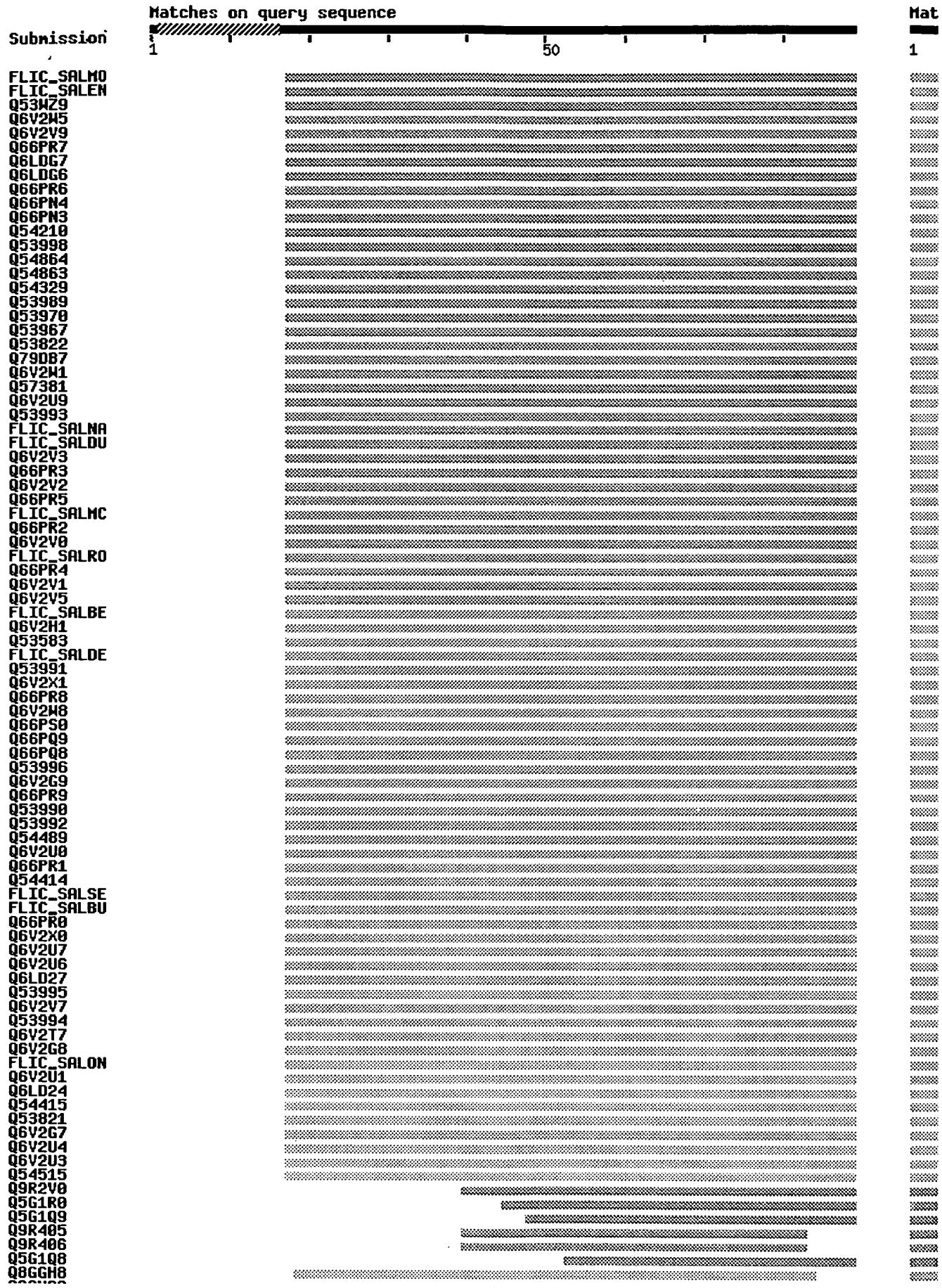
Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(? Help) (use ScanProsite for more details about PROSITE matches)

Profile hits

Pfam hits


Matches on query sequence
Mat
Submission
1
50
1
FLIC_SALMO
FLIC_SALEN
Q53WZ9
Q6V2W5
Q6V2V9
Q66PR7
Q6LDG7
Q6LDG6
Q66PR6
Q66PN4
Q66PN3
Q54210
Q53998
Q54864
Q54863
Q54329
Q53989
Q53970
Q53967
Q53822
Q79DB7
Q6V2W1
Q57381
Q6V2U9
Q53993
FLIC_SALNA
FLIC_SALDU
Q6V2V3
Q66PR3
Q6V2V2
Q66PR5
FLIC_SALMC
Q66PR2
Q6V2V0
FLIC_SALRO
Q66PR4
Q6V2V1
Q6V2V5
FLIC_SALBE
Q6V2H1
Q53583
FLIC_SALDE
Q53991
Q6V2X1
Q66PR8
Q6V2W8
Q66PS0
Q66PQ9
Q66PQ8
Q53996
Q6V2G9
Q66PR9
Q53990
Q53992
Q54489
Q6V2U0
Q66PR1
Q54414
FLIC_SALSE
FLIC_SALBU
Q66PR0
Q6V2X0
Q6V2U7
Q6V2U6
Q6LD27
Q53995
Q6V2V7
Q53994
Q6V2T7
Q6V2G8
FLIC_SALON
Q6V2U1
Q6LD24
Q54415
Q53821
Q6V2G7
Q6V2U4
Q6V2U3
Q54515
Q9R2V0
Q5G1R0
Q5G1Q9
Q9R405
Q9R406
Q5G1Q8
Q8GGH8

==========

Welcome to the SIB BLAST Network Service

If results of this search are reported or published, please mention that the computation was performed at the SIB using the BLAST network service. The SIB BLAST network service uses a server developed at SIB and the NCBI BLAST 2 software.

In case of problems, please read the online BLAST help.
If your question is not covered, please contact <helpdesk@expasy.org>.

NCBI BLAST program reference [PMID:9254694]:
Altschul S.F., Madden T.L., Schäffer A.A., Zhang J., Zhang Z., Miller W., Lipman D.J. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25:3389-3402(1997).

==========

highly conserved

Query: 69 AA
Date run: 2005-07-06 11:38:25 UTC+0100 on sib-gm1.unil.ch
Program: NCBI BLASTP 1.5.4-Paracel [2003-06-05]
Database: EXPASY/UniProtKB
2,035,690 sequences; 659,769,346 total letters
UniProt Knowledgebase Release 5.4 consists of:
UniProtKB/Swiss-Prot Release 47.4 of 05-Jul-2005: 186882 entries
UniProtKB/TrEMBL Release 30.4 of 05-Jul-2005: 1837312 entries

Taxonomic view | NiceBlast view | Printable view

List of potentially matching sequences

Send selected sequences to Clustal W (multiple alignment) Submit Query
Select up to...

☐ Include query sequence

	Db	AC	Description	Score	E-value
☐	sp	Q06973	FLIC_SALMO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	161	2e-39
☐	sp	Q06972	FLIC_SALEN Flagellin (Phase-1-C flagellin) [fliC] [Sal...	161	2e-39
☐	tr	Q53WZ9	_SALEN Phase 1 flagellin [fliC] [Salmonella enteritidis]	161	2e-39
☐	tr	Q6V2W5	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	161	2e-39
☐	tr	Q6V2V9	_9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	161	2e-39
☐	tr	Q66PR7	_SALMO Phase 1 flagellin [fliC] [Salmonella montevideo]	161	2e-39
☐	tr	Q6LDG7	_SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	161	2e-39
☐	tr	Q6LDG6	_SALET Phase-1 flagellin [fliC1] [Salmonella enterica s...	161	2e-39
☐	tr	Q66PR6	_SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	161	2e-39

☐	tr	Q66PN4 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	161	2e-39
☐	tr	Q66PN3 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	161	2e-39
☐	tr	Q54210 _SALGL Phase-1 flagellin [fliC1] [Salmonella gallinarum]	161	2e-39
☐	tr	Q53998 _SALEN Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	161	2e-39
☐	tr	Q54864 _SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	159	1e-38
☐	tr	Q54863 _SALPU Phase-1 flagellin [fliC] [Salmonella pullorum]	159	1e-38
☐	tr	Q54329 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	159	1e-38
☐	tr	Q53989 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	159	1e-38
☐	tr	Q53970 _SALDU Phase-1 flagellin [fliC1] [Salmonella dublin]	159	1e-38
☐	tr	Q53967 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	159	1e-38
☐	tr	Q53822 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	159	1e-38
☐	tr	Q6V2W1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	158	1e-38
☐	tr	Q79DB7 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	158	2e-38
☐	tr	Q57381 _SALEN Phase-1 flagellin [fliC1] [Salmonella enteritidis]	158	2e-38
☐	tr	Q6V2U9 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	157	2e-38
☐	tr	Q53993 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	157	3e-38
☐	sp	Q52959 FLIC_SALNA Phase-1 flagellin [fliC] [Salmonella naestved]	156	6e-38
☐	sp	Q06971 FLIC_SALDU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	156	6e-38
☐	tr	Q6V2V3 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	156	6e-38
☐	tr	Q66PR3 _SALDU Phase 1 flagellin [fliC] [Salmonella dublin]	156	6e-38
☐	tr	Q6V2V2 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	156	6e-38
☐	tr	Q66PR5 _SALNA Phase 1 flagellin [fliC] [Salmonella naestved]	156	6e-38
☐	sp	Q06981 FLIC_SALMC Flagellin (Phase-1-D flagellin) [fliC] [Sal...	155	1e-37
☐	tr	Q66PR2 _SALMC Phase 1 flagellin [fliC] [Salmonella moscow]	155	1e-37
☐	tr	Q6V2V0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	155	1e-37
☐	sp	Q06982 FLIC_SALRO Flagellin (Phase-1-C flagellin) [fliC] [Sal...	154	3e-37
☐	tr	Q66PR4 _SALRO Phase 1 flagellin [fliC] [Salmonella rostock]	154	3e-37
☐	tr	Q6V2V1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	154	3e-37
☐	tr	Q6V2V5 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	153	4e-37
☐	sp	Q06968 FLIC_SALBE Flagellin (Phase-1-I flagellin) [fliC] [Sal...	148	2e-35
☐	tr	Q6V2H1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	148	2e-35
☐	tr	Q53583 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	148	2e-35
☐	sp	Q06970 FLIC_SALDE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	147	3e-35
☐	tr	Q53991 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	147	3e-35
☐	tr	Q6V2X1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	147	3e-35
☐	tr	Q66PR8 _SALDE Phase 1 flagellin [fliC] [Salmonella derby]	147	3e-35
☐	tr	Q6V2W8 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	147	3e-35
☐	tr	Q66PS0 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	147	3e-35
☐	tr	Q66PQ9 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	147	3e-35
☐	tr	Q66PQ8 _SALEE Phase 1 flagellin [fliC] [Salmonella enterica VI...	147	3e-35
☐	tr	Q53996 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	147	3e-35
☐	tr	Q6V2G9 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	146	8e-35
☐	tr	Q66PR9 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica su...	146	8e-35
☐	tr	Q53990 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	146	8e-35
☐	tr	Q53992 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	145	1e-34

☐	tr	Q54489 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	144	3e-34
☐	tr	Q6V2U0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	144	3e-34
☐	tr	Q66PR1 _SALSE Phase 1 flagellin [fliC] [Salmonella senftenberg]	143	6e-34
☐	tr	Q54414 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	142	1e-33
☐	sp	Q06983 FLIC_SALSE Flagellin (Phase-1-C flagellin) [fliC] [Sal...	140	3e-33
☐	sp	Q06969 FLIC_SALBU Flagellin (Phase-1-C flagellin) [fliC] [Sal...	140	3e-33
☐	tr	Q66PR0 _SALBU Phase 1 flagellin [fliC] [Salmonella budapest]	140	3e-33
☐	tr	Q6V2X0 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	140	3e-33
☐	tr	Q6V2U7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	140	3e-33
☐	tr	Q6V2U6 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	140	3e-33
☐	tr	Q6LD27 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	140	3e-33
☐	tr	Q6V2V7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	137	3e-32
☐	tr	Q53995 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	135	1e-31
☐	tr	Q53994 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	135	1e-31
☐	tr	Q6V2G8 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	134	3e-31
☐	tr	Q6V2T7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	133	4e-31
☐	tr	Q6V2G7 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	131	1e-30
☐	sp	Q06974 FLIC_SALON Flagellin (Phase-1-C flagellin) [fliC] [Sal...	131	3e-30
☐	tr	Q6V2U1 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	131	3e-30
☐	tr	Q6LD24 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	131	3e-30
☐	tr	Q54415 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	131	3e-30
☐	tr	Q53821 _SALET Phase-1 flagellin (Fragment) [fliC] [Salmonella ...	131	3e-30
☐	tr	Q6V2U4 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	129	7e-30
☐	tr	Q6V2U3 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	129	9e-30
☐	tr	Q54515 _SALET Phase 1 flagellin [fliC] [Salmonella enterica su...	125	1e-28
☐	tr	Q9R405 _SALGL Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	100	3e-21
☐	tr	Q9R406 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	99	1e-20
☐	tr	Q9R2V0 _SALPU Phase 1 flagellin C (Fragment) [fliC] [Salmonell...	99	1e-20
☐	tr	Q5G1R0 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	88	2e-17
☐	tr	Q5G1Q9 _SALPU FliC (Fragment) [fliC] [Salmonella pullorum]	78	2e-14
☐	tr	Q5G1Q8 _SALGL FliC (Fragment) [fliC] [Salmonella gallinarum]	71	4e-12
☐	tr	Q5ECK7 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q52R20 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q842D4 _ECOLI FliC (Fragment) [Escherichia coli]	45	2e-04
☐	tr	Q5ECJ1 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q5ECI9 _ECOLI FliC (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q9R3Q8 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q8GGI1 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q6VMV6 _ECOLI Flagellin [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q6VMU9 _ECOLI Flagellin [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q5ZPZ4 _ECOLI Flagellin C (Fragment) [fliC] [Escherichia coli]	45	2e-04
☐	tr	Q76DK5 _SALET Phase II flagellin [fljB] [Salmonella enterica s...	45	3e-04
☐	tr	Q6E6Y8 _CITFR Flagellin (Fragment) [fliC] [Citrobacter freundii]	43	0.001
☐	tr	Q8GGH8 _ECOLI Flagellin (Fragment) [fliC] [Escherichia coli]	41	0.003
☐	tr	Q6V2M6 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica]	39	0.012

☐ tr`Q6V2M5 _9ENTR Phase 1 flagellin [fliC] [Salmonella enterica] 39 0.012

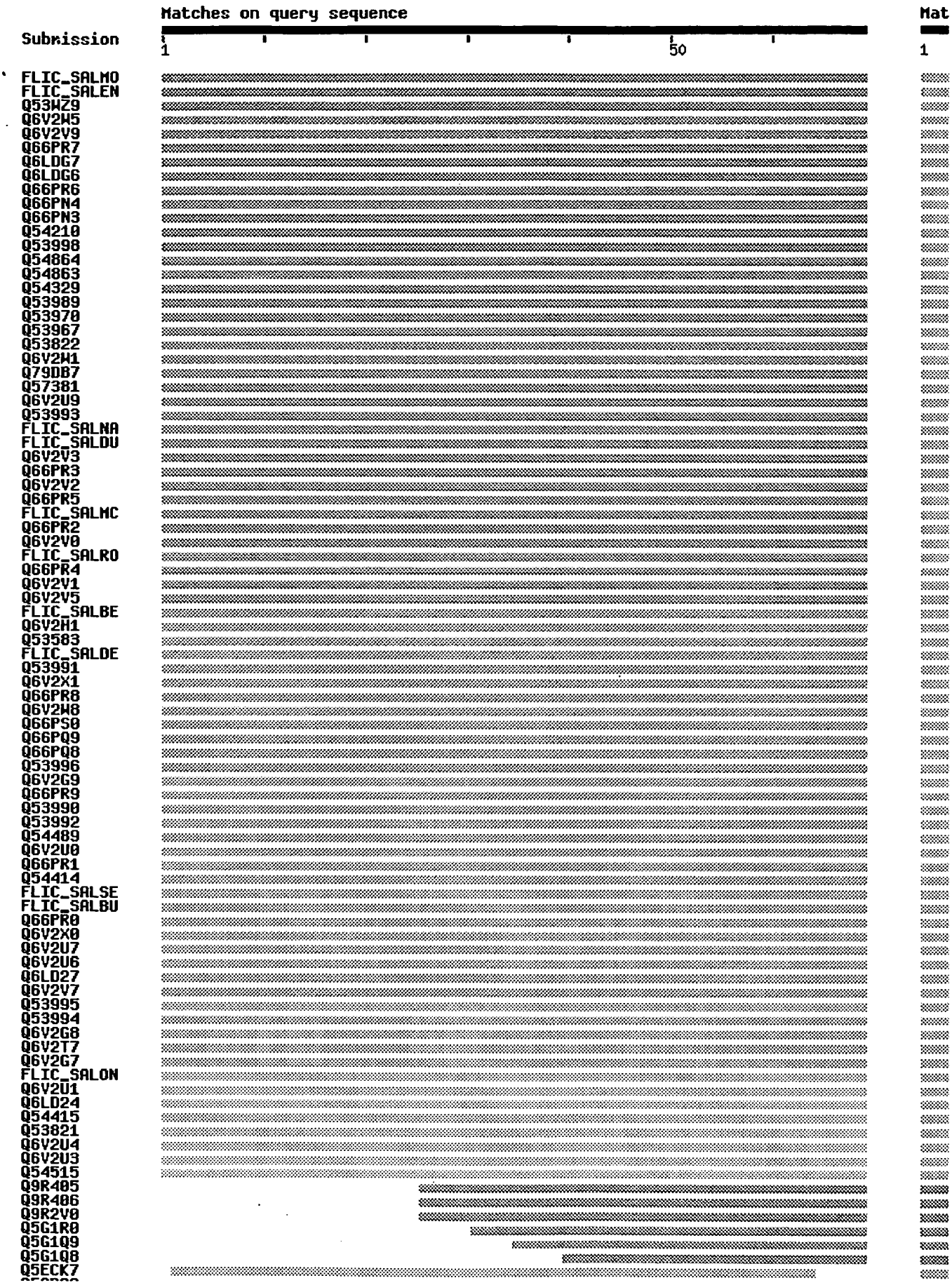
Graphical overview of the alignments

Click here to resubmit your query after masking regions matching PROSITE profiles or Pfam HMMs

(? Help) (use ScanProsite for more details about PROSITE matches)

Profile hits

Pfam hits


Matches on query sequence
Mat
Submission
1
50
1
FLIC_SALMO
FLIC_SALEN
Q53WZ9
Q6V2W5
Q6V2V9
Q66PR7
Q6LDG7
Q6LDG6
Q66PR6
Q66PN4
Q66PN3
Q54210
Q53998
Q54864
Q54863
Q54329
Q53989
Q53970
Q53967
Q53822
Q6V2W1
Q79DB7
Q57381
Q6V2U9
Q53993
FLIC_SALNA
FLIC_SALDU
Q6V2V3
Q66PR3
Q6V2V2
Q66PR5
FLIC_SALMC
Q66PR2
Q6V2V0
FLIC_SALRO
Q66PR4
Q6V2V1
Q6V2V5
FLIC_SALBE
Q6V2H1
Q53583
FLIC_SALDE
Q53991
Q6V2X1
Q66PR8
Q6V2W8
Q66PS0
Q66PQ9
Q66PQ8
Q53996
Q6V2G9
Q66PR9
Q53990
Q53992
Q54489
Q6V2U0
Q66PR1
Q54414
FLIC_SALSE
FLIC_SALBU
Q66PR0
Q6V2X0
Q6V2U7
Q6V2U6
Q6LD27
Q6V2V7
Q53995
Q53994
Q6V2G8
Q6V2T7
Q6V2G7
FLIC_SALON
Q6V2U1
Q6LD24
Q54415
Q53821
Q6V2U4
Q6V2U3
Q54515
Q9R405
Q9R406
Q9R2V0
Q5G1R0
Q5G1Q9
Q5G1Q8
Q5ECK7

Alignments

sp Q06973 FLIC_SALMO **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella montevideo]** 504 AA align

Score = 161 bits (365), Expect = 2e-39
Identities = 69/69 (100%), Positives = 69/69 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 330 VYTSVVNGQ 338
```

IV 04

Segment Region Domain

sp Q06972 FLIC_SALEN **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella enteritidis]** 504 AA align

Score = 161 bits (365), Expect = 2e-39
Identities = 69/69 (100%), Positives = 69/69 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 330 VYTSVVNGQ 338
```

tr Q53WZ9 Q53WZ9_SALEN **Phase 1 flagellin [fliC] [Salmonella enteritidis]** 505 AA align

Score = 161 bits (365), Expect = 2e-39
Identities = 69/69 (100%), Positives = 69/69 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q6V2W5 Q6V2W5_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

```
 Score =  161 bits (365), Expect = 2e-39
 Identities = 69/69 (100%), Positives = 69/69 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q6V2V9 Q6V2V9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

```
 Score =  161 bits (365), Expect = 2e-39
 Identities = 69/69 (100%), Positives = 69/69 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q66PR7 Q66PR7_SALMO **Phase 1 flagellin [fliC] [Salmonella montevideo]** 505 AA align

```
 Score =  161 bits (365), Expect = 2e-39
 Identities = 69/69 (100%), Positives = 69/69 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q6LDG7 Q6LDG7_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 505 AA align

```
 Score =  161 bits (365), Expect = 2e-39
 Identities = 69/69 (100%), Positives = 69/69 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
```

```
            VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q6LDG6 Q6LDG6_SALET **Phase-1 flagellin [fliC1] [Salmonella enterica subsp. enterica serovar Gallinarum/pullorum]** 505 AA align

```
 Score =  161 bits (365), Expect = 2e-39
 Identities = 69/69 (100%), Positives = 69/69 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q66PR6 Q66PR6_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

```
 Score =  161 bits (365), Expect = 2e-39
 Identities = 69/69 (100%), Positives = 69/69 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q66PN4 Q66PN4_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Emek]** 505 AA align

```
 Score =  161 bits (365), Expect = 2e-39
 Identities = 69/69 (100%), Positives = 69/69 (100%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q66PN3 Q66PN3_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis]** 505 AA align

Score = 161 bits (365), Expect = 2e-39
Identities = 69/69 (100%), Positives = 69/69 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q54210 Q54210_SALGL **Phase-1 flagellin [fliC1] [Salmonella gallinarum]** 494 AA align

Score = 161 bits (365), Expect = 2e-39
Identities = 69/69 (100%), Positives = 69/69 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q53998 Q53998_SALEN **Phase-1 flagellin (Fragment) [fliC] [Salmonella enteritidis]** 493 AA align

Score = 161 bits (365), Expect = 2e-39
Identities = 69/69 (100%), Positives = 69/69 (100%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 259 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 318

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 319 VYTSVVNGQ 327
```

tr Q54864 Q54864_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

Score = 159 bits (360), Expect = 1e-38
Identities = 68/69 (98%), Positives = 69/69 (99%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNG+
Sbjct: 331 VYTSVVNGK 339
```

tr Q54863 Q54863_SALPU **Phase-1 flagellin [fliC] [Salmonella pullorum]** 505 AA align

```
 Score =  159 bits (360), Expect = 1e-38
 Identities = 68/69 (98%), Positives = 69/69 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNG+
Sbjct: 331 VYTSVVNGK 339
```

tr Q54329 Q54329_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. jena]** 504 AA align

```
 Score =  159 bits (360), Expect = 1e-38
 Identities = 68/69 (98%), Positives = 69/69 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 330 VYTSVVNGQ 338
```

tr Q53989 Q53989_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Essen]** 504 AA align

```
 Score =  159 bits (360), Expect = 1e-38
 Identities = 68/69 (98%), Positives = 69/69 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
```

```
Sbjct: 330 VYTSVVNGQ 338
```

tr Q53970 Q53970_SALDU **Phase-1 flagellin [fliC1] [Salmonella dublin]** 505 AA align

```
 Score =  159 bits (360), Expect = 1e-38
 Identities = 68/69 (98%), Positives = 68/69 (98%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q53967 Q53967_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. danysz]** 465 AA align

```
 Score =  159 bits (360), Expect = 1e-38
 Identities = 68/69 (98%), Positives = 69/69 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 330 VYTSVVNGQ 338
```

tr Q53822 Q53822_SALET **Phase-1 flagellin (Fragment) [fliC] [Salmonella enterica subsp. enterica serovar Enteritidis var. chaco]** 504 AA align

```
 Score =  159 bits (360), Expect = 1e-38
 Identities = 68/69 (98%), Positives = 69/69 (99%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTG+DGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGNDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 330 VYTSVVNGQ 338
```

tr Q6V2W1 **Phase 1 flagellin [fliC] [Salmonella** 505 AA

Q6V2W1_9ENTR **enterica]** align

Score = 158 bits (359), Expect = 1e-38
Identities = 68/69 (98%), Positives = 68/69 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q79DB7 Q79DB7_SALET **Phase 1 flagellin [fliC] [Salmonella enterica subsp. enterica serovar Othmarschen]** 505 AA align

Score = 158 bits (358), Expect = 2e-38
Identities = 68/69 (98%), Positives = 68/69 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAT ATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATSATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q57381 Q57381_SALEN **Phase-1 flagellin [fliC1] [Salmonella enteritidis]** 505 AA align

Score = 158 bits (358), Expect = 2e-38
Identities = 68/69 (98%), Positives = 68/69 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAT ATDVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATSATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q6V2U9 Q6V2U9_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 157 bits (357), Expect = 2e-38
Identities = 68/69 (98%), Positives = 68/69 (98%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN
```

```
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q53993 Q53993_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 508 AA align

```
 Score =  157 bits (356), Expect = 3e-38
 Identities = 67/69 (97%), Positives = 68/69 (98%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGV+FTIDTKTGDDGNGKVSTTINGEKVTLTVADI TGATDVNAATLQSSKN
Sbjct: 274 KEGDTFDYKGVSFTIDTKTGDDGNGKVSTTINGEKVTLTVADITTGATDVNAATLQSSKN 333

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 334 VYTSVVNGQ 342
```

sp Q52959 FLIC_SALNA **Phase-1 flagellin [fliC] [Salmonella naestved]** 504 AA align

```
 Score =  156 bits (354), Expect = 6e-38
 Identities = 67/69 (97%), Positives = 67/69 (97%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 330 VYTSVVNGQ 338
```

sp Q06971 FLIC_SALDU **Flagellin (Phase-1-C flagellin) [fliC] [Salmonella dublin]** 504 AA align

```
 Score =  156 bits (354), Expect = 6e-38
 Identities = 67/69 (97%), Positives = 67/69 (97%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 330 VYTSVVNGQ 338
```

tr Q6V2V3 Q6V2V3_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 156 bits (354), Expect = 6e-38
Identities = 67/69 (97%), Positives = 67/69 (97%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q66PR3 Q66PR3_SALDU **Phase 1 flagellin [fliC] [Salmonella dublin]** 505 AA align

Score = 156 bits (354), Expect = 6e-38
Identities = 67/69 (97%), Positives = 67/69 (97%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q6V2V2 Q6V2V2_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA align

Score = 156 bits (354), Expect = 6e-38
Identities = 67/69 (97%), Positives = 67/69 (97%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q66PR5 Q66PR5_SALNA **Phase 1 flagellin [fliC] [Salmonella naestved]** 505 AA align

Score = 156 bits (354), Expect = 6e-38
Identities = 67/69 (97%), Positives = 67/69 (97%)

```
Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIA GA DVNAATLQSSKN
```

```
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIAIGAADVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

sp Q06981 FLIC_SALMC **Flagellin (Phase-1-D flagellin) [fliC] [Salmonella moscow]** 504 AA

align

```
 Score =  155 bits (352), Expect = 1e-37
 Identities = 67/69 (97%), Positives = 68/69 (98%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKN
Sbjct: 270 KEGDTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKN 329

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 330 VYTSVVNGQ 338
```

tr Q66PR2 Q66PR2_SALMC **Phase 1 flagellin [fliC] [Salmonella moscow]** 505 AA

align

```
 Score =  155 bits (352), Expect = 1e-37
 Identities = 67/69 (97%), Positives = 68/69 (98%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

tr Q6V2V0 Q6V2V0_9ENTR **Phase 1 flagellin [fliC] [Salmonella enterica]** 505 AA

align

```
 Score =  155 bits (352), Expect = 1e-37
 Identities = 67/69 (97%), Positives = 68/69 (98%)

Query: 1   KEGDTFDYKGVTFTIDTKTGDDGNGKVSTTINGEKVTLTVADIATGATDVNAATLQSSKN 60
           KEGDTFDYKGVTFTIDTKTGD GNGKVSTTINGEKVTLTVADIATGAT+VNAATLQSSKN
Sbjct: 271 KEGDTFDYKGVTFTIDTKTGDGGNGKVSTTINGEKVTLTVADIATGATNVNAATLQSSKN 330

Query: 61  VYTSVVNGQ 69
           VYTSVVNGQ
Sbjct: 331 VYTSVVNGQ 339
```

DOCUMENT-IDENTIFIER: US 5510241 A
TITLE: Method of testing for the presence of Salmonella serotypes expressing Salmonella enteritidis fimbrial antigen (SEFA) and reagents therefore

[redacted]

Detailed Description Text (21):
Transmission electron microscopy of S. enteritidis 1246/89 (fusion strain) cultured for 18 hours at 37.degree. C. revealed three identifiable types of surface organelles. The majority of organisms expressed flagellae, as well as a `rigid`, straight type 1 fimbriae measuring up to 300 nm in length and 8 nm in diameter, projecting from the cell surface. The number of fimbriae on each bacterial cell was variable, and some organisms were devoid of any. A fine fibrillar material attached, usually uniformly, around the bacterium was also observed. Individual filaments within this material were difficult to visualise, measuring less than 5 nm in diameter. Filaments had a `kinked` conformation such that they entangled with each other to form a matted appearance. The matted fibrils extended from the cell surface to approximately 200 nm within the limit of the pool of negative stain around each cell. When the same strain of S. enteritidis was incubated with MAB 69/25 and immunogold conjugate, the fimbrial material was labelled heavily with gold particles. Once labelled this antigen could be seen to extend up to 0.1 micrometers from the cell surface, and was also found in detached amorphous clumps.

Detailed Description Text (22):
Flagellae and type 1 fimbriae were unlabelled. Two further S. enteritidis strains and three S. dublin strains that reacted in the direct binding ELISA, also expressed this fimbrial material which was specifically labelled with the MAB, although many S. dublin organisms appeared within a population not to express this structure or epitope. Fimbrial antigen was not detected or labelled when the same strains of S. enteritidis and S. dublin were grown at 22.degree. C. Strains of S. gallinarum, S. pullorum and S. typhimurium grown at 37.degree. C. for 24 hr were not labelled with gold after probing with Mab.

Detailed Description Text (145):
FIGS. 1A and 1B are S. enteritidis negatively stained with PTA showing three distinct surface organelles. 1A; fine fimbrial material radiating from cell surface and a detached flagellum (arrow). Bar, 200 nm. 1B; fimbrial material (fa) forming matted appearance, and type 1 fimbriae (arrows). Bar 200 nm.

Detailed Description Text (146):
FIGS. 2A and 2B are S. enteritidis organisms probed with Mab 69/25 and labelled with immunogold. 1A; specific labelling of matted fimbrial antigen (fa) uniformly covering the cell surface. Bar, 600 nm. 2B; gold particles attached to matted fimbrial antigen (fa), but flagella and type 1 fimbriae (arrows) are unlabelled. Bar, 400 nm.